PROCEEDINGS

OF THE

MADRAS GOVERNMENT

IN THE

PUBLIC WORKS DEPARTMENT

IRRIGATION BRANCH,

FOR THE

MONTH OF AUGUST 1902.

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IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 887 I., 4th August 1902.

AUGUST.

Funds

Note by the Chief Engineer for Irrigation showing the distribution, made by the Board of Revenue, of a further sum of Rs. 48,154 placed by the Financial Department at the disposal of the Public Works Department for Minor Works, Revenue Department, costing above Rs. 1,000 each to be executed by Civil officers acting as Public Works disbursers, communicated to the officers concerned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

G.O., No. 448, Financial, dated 6th June 1902.

Read—the following papers :—

G.O., No. 1261, Revenue, dated 16th May 1902.

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), No. 84, dated 16th May 1902.

Read—the following telegram from Government, Revenue Department, dated 14th May 1902 :—

56. India's special allotment one-and-half lakhs for Minor Irrigation Works added to grant under 43. Minor Works—Civil Officers' charge. Please apply for transfer to Public Works, of such portion allotment as appertains to works over rupees thousand, furnishing list.

Resolution—No. 84, dated 16th May 1902.

With reference to the telegram read above, the Board begs to submit herewith the accompanying list of works costing more than Rs. 1,000 each, which it is proposed to execute out of the special allotment of Rs. 1,50,000 now sanctioned and requests that Government, in the Financial department, will be pleased to authorize the Accountant-General to transfer to the Public Works Department the sum of Rs. 48,154 * covered by the list of works.

	RS.
* Cuddapah	1,030
Anantapur	12,700
Bellary	3,500
Kurnool	1,250
Chingleput	8,674
Trichinopoly	21,000
Total ...	48,154

2. The following distribution will be made of the remaining allotment of Rs. 1,01,846 (Rs. 1,50,000 — Rs. 48,154) :—

	RS.
Ganjám ...	14,000
Kurnool ...	1,350
Cuddapah ...	9,270
Anantapur ...	3,800
Bellary ...	3,800
Chingleput ...	6,440
North Arcot ...	30,000
Tanjore ...	3,400
Trichinopoly ...	1,000
Tinnevelly ...	8,000
Coimbatore ...	5,525
Salem ...	13,220
Reserve ...	2,041
Total ...	1,01,846

3. The Collectors concerned are requested as already instructed in Board's Proceedings, No. 2657, dated 5th May 1902, to get the necessary estimates sanctioned at once in cases where they have not already done so, and the works put in hand as early as possible. The Board need hardly point out that the works should be

completed during the current official year and that no liability should be left over against 1903–1904. The expenditure incurred should be shown in a separate line in the progress reports on Minor Irrigation Works to be submitted to the Board.

(True Extract.)

(Signed) R. V. SRINIVASIAR,
Secretary.

ENCLOSURE.

Name of Works.	Approximate cost.
	RS.
Cuddapah.	
Konde kalva of Surabhu	1,030
Anantapur.	
Gorimakulapalli tank, Dharmavaram taluk	2,000
Nadimamidi tank, Penukonda taluk	3,500
Muthukur tank, Madaksira taluk	3,800
Brahmanapalli tank, Kalyandrug taluk	2,000
Palarana tank, Madaksira taluk	1,400
Total ...	12,700
Bellary.	
Supply channel of the Harpanahalli big tank	1,500
Muddubasappa yanahalli tank, Kudligi taluk	2,000
Total ...	3,500
Kurnool.	
Restoration of Morabanda Madhavaswami tank	*1,250
Chingleput.	
Pandur tank, Chingleput taluk	†3,214
Mamandur Vadapathi tank, Madurantakam taluk	1,600
Veppenjeri Poigai Maduvu do.	1,500
Vellaputhur Chitteri do.	1,160
Maganiem tank, Conjeeveram taluk	1,200
Total ...	8,674
Trichinopoly.	
Periakulam of K. Sathanur, Trichinopoly taluk	1,200
Sengulam of Thiruvarambur do.	1,050
Kuthangudykulam of Nagabeli do.	1,100
Rajaneri of Pudurpalayam do.	1,465
Kilakulam of Pattalapatti do.	1,250
Manganam Periakulam Pattalapatti, Trichinopoly taluk	1,100
Vanavanathur Valavaneri of Talaidalaimedu, Udayarpalaiyam taluk.	1,500
Periayeri of Thuthur, Udayarpalaiyam taluk	1,100
Tattanoor Periyeri do.	1,100
Averi of Jayankondasholapuram Udayarpalaiyam taluk	1,385
Irungur tank, Kulittalai taluk	1,250
Periyeri of Gúdalúr taluk	1,150
Kesarani river of Sirunavalur, Musiri taluk	1,200
Tank of Chettikulam, Musiri taluk	1,503
Tank of Tiruvalandurai, Perambalúr taluk	1,650
Tank of Kilapuliyur do.	2,000
Total ...	21,000
Grand Total ...	48,154

* The amount provided in the list of works submitted in Board's Proceedings, No. 6872, dated 12th December 1901, was Rs. 2,600, but a detailed estimate for only Rs. 1,250 was sanctioned in Board's Proceedings, No. 1086, dated 12th February 1902.

† The amount originally proposed was Rs. 2,500, but a revised estimate for Rs. 3,214 was submitted subsequently.

Endorsement of the Revenue Department, No. 1342, dated 27th May 1902.

Order—No. 448, Financial, dated 6th June 1902.

A sum of Rs. 48,154 will be transferred from the budget allotment under the head 43. Minor Works and Navigation—In charge of Civil officers to the head 43. Minor Works and Navigation—In charge of Public Works officers, and the Accountant-General will be requested to place the amount at the disposal of the Public Works Department.

(True Extract.)

(Signed) G. S. FORBES,
Acting Chief Secretary.

To the Board of Revenue (Revenue Settlement), dated 13th June 1902, No. 199.
From the ,, ,, ,, 21st ,, ,, Mis. No. 3536.
To the ,, ,, ,, 3rd July ,, Mis. No. 200.

No. 197 I.

Note by the Chief Engineer for Irrigation.

In the order read above, the Financial Department has placed a further sum of Rs. 48,154 at the disposal of this department for Minor Works, Revenue Department, costing above Rs. 1,000 each to be executed by Civil officers acting as Public Works disbursers. The amount has been distributed by the Board of Revenue as shown below :—

District.	Original works.	Repairs.
	RS.	RS.
Cuddapah	1,030	...
Anantapur	5,500	7,200
Bellary	...	3,500
Kurnool	1,250	..
Chingleput	4,364	4,310
Trichinopoly	...	21,000
	12,144	36,010
Total ...	48,154	

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

31st July 1902.

ORDER—No. 887 I., dated 4th August 1902.

Communicated to the officers concerned for information.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*	
Regd.		*Spare copies*	

G.O., Nos. 892, 893 I., 4th August 1902.

AUGUST.

Special Grant of 4 lakhs

Forwarding a copy of the Proceedings approving, with remarks, the distribution, proposed by the Acting Chief Engineer for Irrigation, of the — sanctioned by the Government of India for certain irrigation works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—again the following paper :—

G.O., No. 567 I., dated 20th May 1902.

Read—the following papers :—

From the Secretary to the Government of India, Public Works Department, to the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated 11th March 1902, No. 322 C.W.I.

I am directed to inform you that the Government of India have sanctioned an extra grant for expenditure during 1902–1903 on irrigation works classed under 43. Minor Works and Navigation. I am accordingly to enquire what additional amount the Government of Madras can spend on Imperial or Provincial Works and Surveys beyond that already allotted to them.

2. To enable the Local Government to form some idea of the amount that may be available, I am to state that they can probably have an allotment to the extent of Rs. 5,00,000.

3. If the Local Government cannot spend the grant specified next year, they may spread the money over the next two years if they so desire, but a report on this point should be made for the information of the Government of India.

Telegram from the Secretary to the Government of India, Public Works Department, to the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated 5th May 1902, No. 513 W.

Please expedite reply to Works 322 I., March eleventh about additional grant under 43. Minor Irrigation Works.

Order—No. 567 I., dated 20th May 1902.

Ordered that the following letter be sent.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

READ—also the following papers :—

Telegram from the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, to the Secretary to the Government of India, Public Works Department, Irrigation, Roads and Buildings, dated 7th June 1902, No. $\frac{499}{A}$ D.

Letter No. 568 I., dated 20th ultimo. Please expedite orders pending which works proposed for execution within official year cannot be commenced. Working season passing.

Telegram from the Secretary to the Government of India, Public Works Department, to the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated Simla, 24th June 1902, No. 728 W.

Your telegram seventh June doubtful if additional grant to be given under 43. will exceed three lakhs but final orders will be communicated in a few days. Distribution of special grant to be now made should be arranged on assumption that no additional grant will be given in 1903–1904.

Telegram from the Secretary to the Government of India, Public Works Department, to the Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated Simla, 8th July 1902, No. 764 W.

Works telegram 728 W., June 24; additional grant four lakhs, under 43. for expenditure during 1902–1903, sanctioned.

No. 191 I.

Note by the Chief Engineer for Irrigation.

In their letter embodied in the order read above, the Government of India, while inquiring what additional amount the Local Government could spend on irrigation works classed under "43. Minor Works and Navigation", intimated that an allotment of five lakhs would probably be made and that if the amount could not be utilised in 1902–1903, it might be spread over the current and ensuing years. In the latter case they asked for a report on the subject.

2. In reply, they were informed that the proposed grant could be fully utilised this year and a list of works, which it was proposed to execute from it, was also submitted to them.

3. In their last telegram read above, the Government of India have sanctioned an additional grant of only four lakhs. A revised statement is submitted showing the works proposed to be carried out from it. The works entered in the statement are the same as those shown in the original programme with the exception of those marginally noted which have been omitted in order to work down to the reduced amount. The selection now made involves as small a future liability as possible.

	Amount originally proposed but now not sanctioned.
	RS.
Kistna Northern Division—	
1. Atmakur project	* 15,000
South Arcot and Tanjore Divisions—	
2. Raising Coleroon banks ...	* 78,511

* For works only.

OOTACAMUND,
22nd July 1902.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

Enclosure.

Statement showing names of works proposed to be executed from the Special grant of four lakhs sanctioned by the Government of India under "43. Minor Works and Navigation."

Division.	Name of work.	Amount of estimate.	Amount of proposed expenditure in 1902–03.	Remarks.
	Class II works.	RS.	RS.	
	Ganjám Minor rivers System.			
Ganjám ..	1. Improvements to Dandu Lashmipuram swamp.	17,860	14,000	An estimate of Rs. 17,860 was sanctioned in G.O., No. 585 I., dated 22nd May 1902, for draining the swamp and then irrigating it by means of the Urzam branch of the Polakki channel, Ganjám Minor rivers system.
Kistna Northern.	2. Jangamaheswarapuram tank project.	77,200	30,082	This project provides for the restoration of a ruined tank of this name, for which an estimate of Rupees 77,200 has been sanctioned. On the restoration of the work 800 acres of land will be irrigated yielding a net revenue of Rs. 2,480.
South Arcot.	3. Shatiatope anicut shutters..	1,57,000	63,256	An estimate of Rs. 1,57,000 is being submitted to Government. The amount originally proposed was Rs. 50,000 which has now been increased by Rupees 13,256.
Madura ..	4. Peranai regulator ..	..	20,000	The Government of India having refused sanction to this work under the Open Capital Account of the Periyar project, it is proposed to allot Rs. 20,000 for it from the special grant, pending submission of the completion report of the project to that Government.
	Madras water-supply and Irrigation extension.			
Chingleput.	5. Fitting crest of weir of Red Hills tank with experimental double lift shutters.	..	10,000	The estimate for this work is under preparation and will shortly be sanctioned.
	Total for works ..	..	1,37,338	
	Establishment ..	..	31,588	
	Total, Works and Establishment.	..	1,68,926	
	Class IV (a) Works.			
Kistna Northern.	6. Chinnarowpalem tank project.	35,000	25,000	An estimate of Rs. 35,000 was sanctioned in G O., No. 16 I., dated 7th January 1902. It is expected that on completion of this work, an area of 700 acres yielding a revenue of Rs. 2,450 or a return of 7 per cent. will be irrigated.
	7. Tank Restoration Scheme Works.	..	50,602	This additional grant is proposed as there is a large balance of sanctioned Tank Restoration Scheme estimates yet to be executed.
	Total, Works ..	..	75,602	
	Establishment ..	..	17,388	
	Tools and plant ..	..	1,134	
	Total ..	..	94,124	
	Class V—Agricultural Works.			
Kistna Eastern.	8. Raising the Kistna left bank from 13 to 43 miles 1 furlong.	95,900	50,000	Rs. 20,000 provided in the current year's budget from the ordinary grant. The Superintending Engineer applied for a grant of Rs. 70,000 for this year.
Gódávari Central.	9. Raising the Vasista left bank from 14 to 33 miles and from 36 miles 5 furlongs to 45 miles.	1,11,800	30,000	A sum of Rs. 21,000 has been provided from the special grant of 10 lakhs for this work. The Superintending Engineer has applied for Rs. 30,000 more.
..	10. Raising the Vaineteyam Gódávari left bank from Padapudi lock to Chintallunka channel sluice.	36,300	10,000	An estimate of Rs. 36,300 has been sanctioned for this work. The Superintending Engineer has applied for Rs. 10,000 for expenditure on it during the current year.
..	11. Investigation in connection with wells.	..	20,000	It is proposed to continue the pumping experiment at Melrosapuram in the Chingleput district in this year and to carry out similar experiments in other places.
	Total, Works ..	..	1,10,000	
	Establishment ..	..	25,300	
	Tools and plant ..	..	1,650	
	Total ..	..	1,36,950	
		..	4,00,000	

Order—No. 892 I., dated 4th August 1902.

The distribution proposed by the Acting Chief Engineer for Irrigation is approved.

2. The Superintending Engineers concerned will see that arrangements are made to fully utilise the additional allotments during the year.

3. Orderd that a copy of these Proceedings be forwarded to the Government of India with reference to their telegram of the 8th instant.

[Here enter No. 893 I., dated 4th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineers, I, II, III, V and VI Circles.
,, Examiner, Public Works Accounts.
,, Financial Department.

Endorsement—No. 893 I., dated 4th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 900, 901 I., 6th August 1902.

AUGUST.

Shed with an office-room for the Superintendent at the Commamore Lock

Approving the estimate of Rs. 830 for constructing a —, and forwarding for sanction a copy of the proceedings together with the plan and estimate for the work.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From H. H. O'CONNELL, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezwada, 20th June 1902, No. 103 I.

In forwarding herewith copy of Examiner's letter No. 2176 B./Bk., dated 27th May 1902, I have the honour to request you will be so good as to obtain sanction of Government of India to the estimate for reconstructing a shed for lock superintendent at Commamore lock for Rs. 830.

2. A shed for the lock superintendent was already in existence, but being low and in a dilapidated condition it was condemned and a fresh shed with an office-room for attending to lock tappals has been proposed.

3. The necessity for the office-room which greatly enhanced the rental of the building calculated according to rules in paragraph 1068 of Public Works Code is explained in the Executive Engineer's letter No. 43 S., dated 28th April 1902 (copy attached).

4. All canal buildings are rent-free—*vide* G.O., No. 686 W., dated 8th March 1889.

Enclosures.

From C. R. T. BALSTON, Esq., Examiner of Public Works Accounts, Madras and Coorg, to the Superintending Engineer, II Circle, dated 27th May 1902, No. 2176 B./Bk.

Referring to your E. No. 61 K.W. of the 7th instant, forwarding copy of your No. 60 K.W. of the same date to the Executive Engineer, Kistna Western division, communicating sanction to the estimate of Rs. 830 for "reconstructing a shed for the lock superintendent at Commamore lock," I have the honour to point out that the rental of the building calculated under the rules in paragraph 1068 of Public Works Code exceeds 8 per cent. of the average salary (Rs. 12½) of the lock superintendent—*vide* Public Works Department Code, paragraph 1066, rule (i).

I would therefore request that you will, with reference to rule (ii) under the above paragraph, move the Local Government to obtain the special sanction of Government of India to the estimate.

From J. H. MEDLICOTT, Esq., Executive Engineer, Kistna Western Division, to the Superintending Engineer, II Circle, dated 28th April 1902, No. 43 S.

I have the honour to inform you that an estimate, amounting to Rs. 730, was sanctioned in your No. 349 K.W., dated 31st October 1901, for reconstructing a shed for lock superintendent at Commamore lock, the existing one being in a dilapidated condition and the accommodation provided being only two rooms—one of 12′ × 12′ and the other of 12′ × 6½′.

2. It has subsequently been brought to my notice that the lock superintendent at this place has a lot of tappal business to attend to daily and that he should have an office-room near his quarters.

3. I therefore submit herewith a revised plan and estimate, amounting to Rs. 900, and request that you will be so good as to sanction the same in lieu of the one already sanctioned.

4. The quantity of rough stone required for the shed is available at site free of cost. Early sanction is requested.

5. The man is the senior lock superintendent in the division and has charge of the two locks at the head of the Nizampatam and Commamore canal, respectively. He receives and despatches all tappal, as Duggirala is the central tappal office of the division.

No. 196 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, II Circle, submits an estimate, amounting to Rs. 830, for constructing a shed with an office-room for the superintendent at the Commamore lock, Kistna Western delta, as the present shed is stated to be low and in a dilapidated condition. As the rental of the building calculated with reference to paragraph 1066 (i) of the Public Works Department Code exceeds the limit therein laid down, the estimate requires the sanction of the Government of India with reference to G.O., No. 1482 W., dated 31st May 1897.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

18th July 1902.

Order—No. 900 I., dated 6th August 1902.

The following estimate is approved:—

Imperial.
Irrigation.
42. Major Works (Working Expenses).
Kistna Delta System.
Western Division.
1. Extensions and Improvements.
2. Main canals and branches.
K. Buildings.
Constructing a shed with an office-room for the Superintendent at the Commamore Lock.

	RS.
Estimate	830

2. Ordered that a copy of these proceedings, together with the plan and estimate for the work, be forwarded for the sanction of the Government of India with reference to paragraph 1066 (ii) of the Public Works Department Code.

[Here enter No. 901 I., dated 6th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle.
,, Examiner, Public Works Accounts.

Endorsement—No. 901 I., dated 6th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 902 I., 6th August 1902.

AUGUST.

Revised schedule of works connected with the Rushikulya Project

Approving, with remarks, the — on which it is proposed to utilize the current year's grant of Rs. 57,967.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

Telegram to the Superintending Engineer, I Circle, dated 27th June 1902.
From the Superintending Engineer, I Circle, dated 1st July 1902, No. 837 G.N.
To the ,, ,, I ,, ,, 14th ,, ,, ,, 23 G.N.
From the ,, ,, I ,, ,, 28th ,, ,, ,, 988 G.N.

IMPERIAL MAJOR WORKS.

GOVERNMENT OF MADRAS.

Charges.

Part II.

Details of the Budget Estimate for Original Works under Irrigation Major Works in the Madras Presidency for the year 1901-1902.

Division.	Locality.	Sub-Division of expenditure.	Item No.	Detail of works.	Amount of estimate.	Outlay. To end of 1900-1901.	Outlay. Probable during 1901-1902.	Grant for 1902-1903.	Item No.	Remarks and references.
				IMPERIAL. CLASS I. MAJOR (PROTECTIVE WORKS). FAMINE RELIEF AND INSURANCE. 35. Construction of Protective Irrigation Works. *Capital Account.* Rushikulya Project. 3. Distributaries. Rushikulya Section.	RS.	RS.	RS.	RS.		
Ganjám.	Berhampur taluk	B. Land ..	1	Excavation of B. branch of Ichchapur channel ..	7,350	..	1,100	2,900	1	P.M.G., No. 868 I., dated 12th October 1900.
		C. Works ..		Flush outlet at 3—2—370 ..	250	183	— 29	96		
				Constructing drop and bridge at 2⅛ mile to carry rifle range road ..	570	..	465	105		
				Fixing stoneware pipes ..	1,700	..	42	1,658		
				Bridge No. 5, at 5 miles 2 furlongs ..	730	295	208	227		
				,, No. 6, at 6 ,, 3 ,, 490 feet ..	690	251	8	431		
				,, No. 1, at 1 mile 2 ,, 220 ,, ..	450	..	55	395		
				Drainage under-tunnel at 1,780 feet above drop No. 3 ..	630	..	56	574		
				Constructing a drop and way at Ambugada ..	120	..	..	120		
		L. Earthwork ..		Excavation of channel ..	17,500	4,632	2,560	2,618		
		O. Miscellaneous.		Fixing demarcation stones ..	400	..	..	294		
	Do. ..	C. Works ..	2	Excavation of A. branch of No. 13 distributary R. canal ..	1,760	..	1,246	150	2	P.M.G., No. 167 I., dated 26th February 1901.
	Do. ..	L. Earthwork ..	3	Extension from 6½ miles + 440 feet to 7⅝ miles + 220 feet of No. 13 distributary R. canal.	1,080	356	422	50	3	P.M.G., No. 1026 I., dated 5th December 1900.
	Do. ..	B. Land ..	4	Excavating Borigam minor distributary from 4½ miles of R. canal ..	190	..	191	148	4	P.M.G., No. 128 I., dated 9th February 1901.
		C. Works ..		Constructing head sluice ..	390	..	407	33		
				Drop No. I, at 1,000′ ..	100	..	81	18		
				,, No. II, at 1,700′ ..	100	..	84	16		
				,, No. III, at 3,300′ ..	100	..	..	100		
				,, No. IV, at 3,800′ ..	100	..	79	21		
				,, No. V, at 4,500′ ..	100	..	..	100		
				,, No. VI, at 5,500′ ..	100	..	87	23		
				,, No. VII, at 400′ of B. branch ..	100	..	..	100		
				,, No. VIII, at 1,900′ ..	100	..	77	21		
				Constructing a drop at end of B. branch ..	45	..	..	12		
		L. Earthwork ..		Excavation of channel ..	700	..	228	859		
		O. Miscellaneous.		Fixing demarcation stones ..	90	..	46	49		

Details of the Budget Estimate for Original Works under Irrigation Major Works in the Madras Presidency for the year 1901-1902—*cont.*

Division.	Locality.	Sub-Division of expenditure.	Item No.	Detail of works.	Amount of estimate.	Outlay. To end of 1900-1901.	Outlay. Probable during 1901-1902.	Grand for 1902-1903	Item No.	Remarks and references.
				Rushikulya Section—*cont.*	RS.	RS.	RS.	RS.		
Ganjam—*cont.*	Berhampur taluk—*cont.*	B. Land ..	5	Excavation of Ambugada minor distributary	270	..	484	200	5	P.M.G., No. 363 I., dated 29th April 1901.
		C. Works ..		Constructing head sluice	300	..	54	246		
				,, drop No. I	105	..	..	105		
				,, ,, No. II	105	..	..	105		
				,, ,, No. III	105	..	..	105		
				,, ,, No. IV	105	..	..	105		
				,, ,, No. V	105	..	..	105		
				,, ,, No. VI	100	..	..	100		
				,, terminal weir	35	..	..	35		
		L. Earthwork ..		Excavation of channel	330	..	23	304		
		O. Miscellaneous.		Demarcating land	40	..	..	40		
				I. Head Works.						
	Surada ..	{ I. Works .. / C. Works .. }	6	Improvements to Surada reservoir head sluice	8,650	454	7,550	610	6	P.M.G., No. 996 I., dated 20th December 1901.
	Do. ..	Do. ..	7	,, to surplus weir of Surada reservoir	15,250	2,782	12,033	430	7	P.M.G., No. 420 I., dated 23rd May 1901.
	Aska taluk ..	Do. ..	8	,, to Janavilly anicut	9,420	128	8,928	360	8	P.M.G., No. 411 I., dated 16th May 1901.
				Mahanadi Section.						
	Russellkonda ..	K. Buildings ..	9	Constructing quarters for the four head works lascars at Soromollo ..	1,960	462	1,271	220	9	Works nearly completed.
	Do. ..	Do. ..	10	,, ,, ,, head works superintendent	1,260	300	751	210	10	
	Do. ..	L. Earthwork ..	11	Raising the Russellkonda reservoir bund	2,800	..	2,383	400	11	P.M.G., No. 436 I., dated 12th April 1902.
				Rushikulya Section.						
				I. Head Works.						
	Surada ..	C. Works ..	12	Connecting and widening the old cuts in the rear of Surada reservoir surplus weir.	3,960	..	2,350	1,610	12	P.M.G., No. 782 I., dated 18th October 1901.
				II. Main Canals and Branches.						
	Do. ..	O. Miscellaneous.	13	Field and boundary stones required for demarcating sub-division of fields taken up for R. project.	3,100	42	..	500	13	The estimates for these works have not yet been submitted and the Executive Engineer has been asked by the Superintending Engineer to expedite their submission.
				Mahanadi Section.						
	Russellkonda ..	B. Land ..	14	Excavating an Irrigation channel from drop No. I. head sluice channel to jail tank.	500	213	2	281	14	
		C. Works ..		Sluice at head	660	612	— 3	51		
				Drop No. I	1·0	173	..	17		
				,, No. II	175	114	..	61		

Ganjám—*cont.*				Rushikulya section.						
				III. Distributaries.						
	Berhampur ..	B. Land ..	15	Excavating Konisi minor distributary and its branches from No. 10 or Ichapur channel at mileage 17.	..	..	..	660	15	
		C. Works ..		Constructing masonry dam ..	..	..	..	245		The Superintending Engineer reports that the estimate will be submitted shortly.
				,, head sluice ..	..	..	..	880		
				,, railway culvert ..	..	..	..	660		
				,, under tunnel ..	..	..	..	840		
				,, outlet ..	..	..	..	150		
				,, ,, ..	..	..	..	230		
				,, road culvert ..	..	..	..	470		
				,, regulating dam ..	..	..	..	190		
				,, road culvert ..	..	..	..	230		
				,, 2′ masonry drop ..	..	..	..	65		
				,, 2′ ,, ..	..	..	..	65		
				,, 4′ ,, ..	..	..	..	115		
				,, 6′ ,, ..	..	..	..	225		
				,, 6′ ,, ..	..	..	..	225		
				,, 8′ ,, ..	..	..	..	305		
				,, 8′ ,, ..	..	..	..	305		
				,, 3′ ,, ..	..	..	..	90		
				,, terminal weir ..	..	..	..	50		
				,, ,, ..	..	..	..	50		
		L. Earthwork ..		Excavating minor distributary ..	..	..	..	2,570		
		O. Miscellaneous.		Demarcating the land ..	..	..	..	230		
	Do. ..	B. Land ..	16	Excavating a channel (Patha Berhampur) from B branch of Ichapur channel.	..	..	..	500	16	Estimates for these works received from the Superintending Engineer are under scrutiny.
		C. Works ..		Constructing a regulating dam ..	..	..	..	225		
				,, a sluice at head ..	..	..	..	155		
				,, culvert at 1 furlong + 240 feet ..	..	..	..	155		
				,, a culvert at 2 furlongs 575 feet ..	..	..	..	190		
				,, 2 ft. drop at 6 furlongs 210 feet ..	..	..	..	85		
				,, culvert at 7 furlongs 90 feet ..	..	..	..	240		
				,, 4½ feet drop at 1 mile + 190 feet ..	..	..	..	110		
				,, flush escape at one mile 2 furlongs + 270 feet ..	..	..	..	200		
				,, masonry drop at 1 mile 3 furlongs + 310 feet ..	..	..	..	135		
				,, sluice and culvert combined at 1 mile 3 furlongs + 510 feet ..	..	..	..	340		
				,, 7 feet drop at 2 miles 3 furlongs + 320 feet ..	..	..	..	240		
				,, under tunnel at 2 miles 3 furlongs 110 feet ..	..	..	..	625		
				,, flush escape at 2 miles 6 furlongs + 500 feet ..	..	..	..	200		
				,, 2 feet drop at 3 miles + 230 feet ..	..	..	..	85		
				,, culvert at 3 miles + 400 feet ..	..	..	..	240		
				,, terminal weir at end of Patha Berhampur channel ..	..	..	..	50		
		L. Earthwork ..		Excavating channel ..	..	..	..	2,040		
		O. Miscellaneous.		Fixing mile and furlong stones ..	..	..	..	50		
	Do. ..	B. Land ..	17	Excavating the extension of No. 8 distributary from Rushikulya canal ..	..	..	..	715	17	
		C. Works ..		Constructing drop No. 1 ..	..	..	..	670		
				,, No. 2 ..	..	..	..	670		
				,, No. 3 ..	..	..	..	670		
				,, No. 4 ..	..	..	..	670		
				,, No. 5 ..	..	..	..	670		
		..		Constructing under tunnel ..	..	..	..	620		
				,, ramps ..	..	..	..	40		
				,, terminal weir ..	..	..	..	100		

Details of the Budget Estimate for Original Works under Irrigation Major Works in the Madras Presidency for the year 1901-1902—*cont.*

Division.	Locality.	Sub-divison of expenditure.	Item No.	Detail of works.	Amount of estimate.	Outlay. To end of 1900-1901.	Outlay. Probable during 1901-1902.	Grant for 1902-1903.	Item No.	Remarks and references.
				Rushikulya Section—*cont.*	RS.	RS.	RS.	RS.		
				III. Distributaries—*cont.*						
Ganjám—*cont.*	Berhampur—*cont.*	L. Earthwork ..		Excavating the extension	..	..	..	1,880		
		O. Miscellaneous.		Fixing mile and furlong stones	..	..	..	25		
				Mahanadi Section.						
	Russellkonda ..	B. Land ..	18	Excavating Bijapatti and Lalsingi channels starting from the jail tank channel.	..	..	..	80	18	Estimate promissed by the Superintending Engineer to be submitted very shortly.
		C. Works ..		Constructing head sluice	..	..	..	140		
				,, bridge	..	..	..	320		
				,, regulator at Bifurcation	..	..	..	100		
				,, 5 feet drop	..	..	..	90		
				,, 3 feet ,, ...	..	..	..	60		
				,, ,, ,, ...	..	..	..	60		
				,, terminal weir	..	..	..	40		
		L. Earthwork ..		Excavating channel	..	..	..	660		
		O. Miscellaneous.		Fixing mile and furlong stones	..	..	..	15		
				Lalsingi branch						
	Do. ..	B. Land ..	19	Compensation for land	..	..	..	170	19	
		C. Works ..		Constructing a regulating dam at head of Lalsingi channel	..	..	..	60		
				,, a flush outlet No. 1	..	..	..	60		
				,, ,, ,, 2	..	..	..	60		
				,, ,, ,, 3	..	..	..	60		
				,, terminal weir	..	..	..	40		
		L. Earthwork ..		Excavating channel	..	..	..	405		
		O. Miscellaneous.		Fixing mile and furlong stones	..	..	..	25		
	Gumsur ..	..	20	Excavating Girisola channel	..	..	..	8,419	20	
				Mahanadi Section.						
	Do. ..	B. Land ..	21	Excavating Mahanadi right embankment channel starting from left bank at 700 feet of Mahanadi canal.	470	..	..	470	21	P.M.G., No. 318 I., dated 10th March 1902.
		C. Works ..		Constructing drop and terminal weir	150	..	..	150		
				,, ,, No. 1	150	..	..	150		
				,, ,, No. 2	140	..	..	140		
				,, head sluice	635	..	..	635		
		L. Earthwork ..		Excavating channel	1,700	..	..	1,700		
		O. Miscellaneous.		Fixing mile and furlong stones	45	..	..	45		
	Do. ..	B. Land ..	22	Excavating Bevakonda channel starting from Boringa Nella above No. 2 drop.	..	..	..	340	22	P.M.G., No. 587 I., dated 22nd May 1902.
		C. Works ..		Constructing head sluice	..	..	..	220		
				Fixing 9 inches pipes	..	..	..	45		
				Constructing outlet No. 1	..	..	..	105		
				,, ,, No. 2	..	..	..	230		

			,, ,, No. 3	..	..	..	110		
			,, ,, No. 4	..	..	..	70		
			,, bridge	..	..	..	200		
			,, terminal weir	..	..	..	55		
	L. Earthwork ..		Excavating channel	..	..	..	2,430		
	O. Miscellaneous.		Fixing demarcation stones	..	..	..	45		
			Rushikulya Section.						
Berhampur ..	B. Land ..	23	Excavating Durbanda channel from left bank of R. canal at 39 miles 3 furlongs 100 feet.	..	..	..	55	23	P.M.G., No. 511 I., dated 5th May 1902.
	C. Works ..		Constructing a sluice at head	..	..	..	410		
			,, terminal weir at 3,700 feet	..	..	..	55		
	L. Earthwork ..		Excavating channel	..	..	..	590		
	O. Miscellaneous.		Demarcating land	..	..	..	70		
			Total Works ..	..	..	..	* 57,967		* Includes Rs. 6,519 for land compensation charges.
			Establishment ..	..	..	..	11,833		
			Tools and plant ..	..	..	..	200		
			Grand Total ..	..	..	..	70,000		

No. 198 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, I Circle, with his first letter read above, submits a revised schedule of the works connected with the Rushikulya Project, on which it is proposed to utilize the current year's grant of Rs. 57,967. Of the estimates for items 15 to 20 promised to be submitted by the Superintending Engineer, those for items 16 to 19 have now been received in this office and are under consideration. The Superintending Engineer should see that estimates for the other works* are submitted without delay. The schedule may be approved.

* 15. Excavating Konisi minor distributary and its branches from the Ichchapur channel at 17 miles.
20. Do. Giresola channel.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

4th August 1902.

ORDER—No. 902 I., dated 6th August 1902.

The revised schedule is approved.

2. The Superintending Engineer, I Circle, will see that the estimates referred to are submitted in time for sanction to admit of the grant being fully utilized during the year.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*
Regd.		*Spare copies*

G.O., Nos. 913, 914 I., 8th August 1902.

AUGUST.

Statements of Grant for, and Expenditure on, Irrigation, Navigation and Agricultural Works

Reviewing the — during 1901-1902 and forwarding a copy of the proceedings.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

To the Examiner, Public Works Accounts, dated	14th	May	1902,	No.	162.
From	,,	,,	29th	,,	,,	,, 2250 B/B.K.
To	,,	,,	2nd June	,,	,,	188.
From	,,	,,	5th July	,,	,,	2794 B/B.K.

No. 199 I.

Note by the Chief Engineer for Irrigation.

The accompanying two statements which compare the expenditure incurred on Irrigation, Navigation and Agricultural works during 1901–1902 with the final grants for the year are submitted to Government, with reference to G.O., No. 141 W., dated 10th January 1883.

2. The statement "A" shows by divisions the grants for, and expenditure on, original works and repairs under the several heads; and the statement "B" shows the total grants and expenditure including establishment and tools and plant for each system and class of works. The figures representing expenditure have been verified by the Examiner, Public Works Accounts, and include the supplementary transactions for March 1902 up to the 5th July 1902—*vide* his office-note No. 2794 B./B.K., dated 5th July 1902.

3. The total expenditure incurred (*vide* statement B) amounted to Rs. 53,52,554 against a total final grant of Rs. 54,64,857 as shown below:—

—	Final grant.	Expenditure.	Difference, more or less.
Imperial.	RS.	RS.	RS.
35. Protective Works—Irrigation ..	1,13,600	89,289	— 24,311
42. Major Works (Working expenses) ..	14,72,700	14,52,371	— 20,329
49. Capital expenditure not charged to Revenue ..	7,47,100	7,09,188	— 37,912
Total ..	23,33,400	22,50,848	— 82,552
Provincial.			
43. Minor Works and Navigation ..	31,24,157	30,97,596	— 26,561
Local.			
43. Minor Works and Navigation ..	7,300	4,110	— 3,190
Grand Total ..	54,64,857	53,52,554	— 1,12,303

The total lapse amounted to Rs. 1,12,303 or 2·05 per cent. on the whole grant.

4. 35. *Protective Works—Irrigation.*—The expenditure on the Rushikulya project fell short of the grant by Rs. 4,516 owing to the non-payment of land compensation charges which were expected to be adjusted before the close of the official year.

	Grant.	Outlay.
	RS.	RS.
* For Works	3,700	8,066
,, Establishment ...	49,650	26,850
,, Tools and plant	5,250	4,796
Total ...	58,600	39,712
Difference ...	18,888.	

The expenditure shown as booked up to the 5th July against a grant of Rupees 58,600* for the investigation of protective irrigation projects is shown to be only Rs. 39,712, leaving a balance of Rupees 18,888 yet to be accounted for. This, it is anticipated, will be considerably reduced by the adjustments yet to be made.

5. 42. *Major Works (Working Expenses).*—The unexpended balance of the grants under this head was only Rs. 1,954 or 0·26 per cent. of the total grant for works and repairs. The short outlay in the Gódávari Central division under "Maintenance and repairs" is almost counterbalanced by the excess outlay under extensions and improvements. The excess outlay of Rs. 1,229 under extensions and improvements and maintenance and repairs in the Gódávari Western division is reported to be chiefly due to an excess debit on account of certain lock gates. The excess outlay of Rs. 3,176 under "Maintenance and repairs" in the Kistna Eastern division is reported to be due to an unexpected write-back under this head, and to a larger portion of the grant having been surrendered than was necessary. The net lapse in the Kurnool division amounts to only Rs. 1,580. In his telegram, dated 25th February 1902, the Executive Engineer, Kurnool division, reported a surrender of Rs. 2,700, which being too late in the year was not accepted. In the Negapatam division the short outlay of Rs. 1,098 under "Maintenance and repairs" is attributed to the difficulty experienced in obtaining labour due to coolies having been engaged in agricultural operations, while that in the Trichinopoly division is due, it is reported, to progress of works having been retarded owing partly to water in channels till very late in the year and partly to the failure of the contractor to supply the shutters required for the Peruvali channel.

6. 49. *Capital Expenditure not charged to Revenue.*—The short outlay in the (*a*) three divisions of the Kistna delta system, (*b*) Nellore and (*c*) Madura divisions is, it is stated, due to the charges for compensation for land not having been adjusted to the extent anticipated.

(*a*) 3,577, (*b*) 5,942 and (*c*) 1,743.

7. *Provincial*—43. *Minor Works and Navigation—Class II—Minor Works and Navigation for which Capital and Revenue Accounts are kept—Capital Account.*—The grants under this head have been closely worked out. The outlay incurred in the Cuddapah and Tanjore divisions exceeded the grant by Rs. 2,071 and Rs. 4,334, while that in the Coimbatore and South Arcot divisions fell short of the grant by Rs. 1,065 and 4,896, respectively. The excess in the Tanjore division is attributed to the workshop debits having been received to a larger extent than was anticipated. The lapse in the South Arcot division is, it is stated, due partly to land compensation charges not having been fully adjusted as was expected, and partly to the difficulty experienced in procuring carts and labour owing to high rates prevailing in consequence of the large groundnut crop. No explanation has been furnished for the excess outlay † in the Cuddapah and short outlay ‡ in the Coimbatore divisions.

† Rupees 2,071. | ‡ Rupees 1,055.

Revenue Account.—The short outlay under "extensions and improvements" in the North Arcot division is reported to be partly due to the savings in the estimates executed and partly to the non-adjustment of certain charges for which explanation has been called for, but not yet received. The lapse of Rs. 1,140 under the above head in the South Arcot division is chiefly attributed to the non-adjustment of charges for land compensation.

8. *Class IV—Other Minor Works for which neither Capital nor Revenue nor Individual Accounts are kept—Public Works Department—Ordinary Works.*—The total outlay under both "original works" and "repairs" exceeded the grants by Rs. 18,192. The *minus* entry under "original works" against the Kistna Eastern division represents the write-back of outlay incurred on the work of excavating a minor supply channel

to Pulivartivari tank from "original works" to "repairs". The lapse of Rs. 1,326 in the Tinnevelly division under original works is, it is stated, due to the amount having been reserved to meet the charges for land compensation which have not been subsequently adjusted. The outlay in the Kistna Eastern division under "repairs" exceeded the grant by Rs. 9,956 owing to certain urgent works in the Divi Island having been carried out in anticipation of the necessary appropriation of funds, which it was not however possible to allot. The excess outlay, both under original works and repairs in the Kistna Northern division, is ascribed to the demands for additional allotments not having been complied with owing to want of funds. The short outlay in the Cuddapah division under repairs is counterbalanced by the excess under "original works". The expenditure in the Coimbatore division under original works and repairs exceeded the grant by Rs. 7,948, of which Rs. 1,968 were under "original works". This excess outlay was incurred in reconstructing the Vellalore and Kurichi anicuts, which had to be completed, foundations having been laid in March 1901. The additional grant required for these works could not be sanctioned for want of funds. The excess under repairs is, it is stated, due to the abnormal floods of 1900–1901, which caused considerable damage to irrigation works of the Noyil river. Expenditure was, it is stated, restricted to absolute necessities and the additional grants asked for could not be made. No explanation is furnished for the lapse of Rs. 1,382 under repairs in the South Arcot division.

9. *Tank Restoration Works.*—The outlay under this head exceeded the grants by Rs. 2,062, the major portion of which occurred in the Nellore division where more works had to be executed than was anticipated.

10. *Class IV (b)—Minor Works, Revenue Department, executed by Public Works Officers.*—The outlay under this head exceeded the grants by only Rs. 688.

Class IV (b)—Minor Works, Revenue Department, in charge of Civil Officers.—Of the total grant of Rs. 57,295 the outlay booked up to 5th July is only Rs. 2,798. There is, therefore, a balance of Rs. 54,497 to be yet accounted for. The adjustments now being made by the Examiner, Public Works Accounts, would, it is hoped, show this amount to have been fairly worked out. The outlay on these works was booked in the civil department from the beginning of the year up to October last when orders for its audit and adjustment by the Examiner, Public Works Accounts, were issued in G.O., No. 2631 W., dated 3rd October 1901. But it was decided in G.O., No. 176, Financial, dated 27th February 1902, that the whole expenditure during the year should be treated as Public Works expenditure. This necessitated the transfer of the accounts from the civil department to the books of the Examiner, Public Works Accounts, in the closing part of the year.

11. *Agricultural Works.*—The total outlay, both under original works and repairs, exceeded the grant by Rs. 2,130. The short outlay in the Gódávari Eastern division under original works is stated to be due to land compensation charges not having been adjusted to the extent anticipated, and that under repairs is ascribed to the late assignment of the supplemental grant of Rs. 6,118. The excess outlay under repairs in the Gódávari Central division is due to more payments having been made by the Revenue Department on account of compensation for land. The explanation of the excess outlay in the Gódávari Western division promised by the Executive Engineer is awaited. In the Kistna Eastern division, the expenditure under original works exceeded the grant by Rs. 5,104 owing to the execution of certain urgent works in the Divi Island in anticipation of the allotment of additional funds. The short outlay of Rs. 1,917 under repairs in the Kistna Western division represents, it is stated, the land compensation charges expected to be adjusted in the supplemental accounts. The excess expenditure in the Trichinopoly division under repairs was, it is stated, unavoidable and had to be incurred in closing breaches caused to the banks of the Cauvery and Coleroon, for which the additional grants applied for could not be sanctioned for want of funds.

12. *Local—43. Minor Works and Navigation.*—The outlay under this head is Rs. 3,190 less than the grant. The short outlay in the Coimbatore and Salem divisions is, it is reported, due to want of sanctioned estimates.

13. It will be seen from the above review that the lapses in many divisions, though small, were due to the charges for land compensation not having been adjusted as was anticipated before the close of the year. If the Superintending Engineers concerned had followed the instructions contained in G.O., No. 1507 W., dated 8th June 1900, the lapses in question would not have occurred. They should see, however, that, in future, these instructions are strictly acted upon.

14. It is further noticed that there is a tendency in some divisions to incur expenditure in anticipation of grants. It is hoped that the instructions contained in the Government of India letter printed with G.O., No. 180 I., dated 22nd February 1897, for the regulation of outlay, will be strictly adhered to in future by Superintending Engineers.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

26th July 1902.

A.—Statement showing by Divisions the Grant for, and the Expenditure incurred on, Original Works and Repairs under Irrigation, Navigation and Agricultural Works during 1901–1902.

Divisions.	Imperial.								Provincial—43. Minor Works and Navigation.									
	35. Protective Works—Irrigation.		42. Major works—Working expenses.				49. Capital expenditure not charged to Revenue.		Minor Works for which Capital and Revenue Accounts are kept.						Minor Works for which neither Capital nor Revenue nor Individual accounts are kept, P.W.D.			
			Extensions and improvements.		Maintenance and repairs.				Capital account.		Revenue account.				Original works.		Repairs.	
											Extensions and improvements.		Maintenance and repairs.					
	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjám	45,207	40,691	12,060	11,401	39,500	39,999	..	..	9,365	8,741	19,145	18,707	20,969	21,605	4,000	4,137	1,740	2,187
Vizagapatam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9,300	9,399	11,500	11.031
Gódávari, Eastern	..	..	10,500	10,771	1,25,915	1,25,075	30,242	28,165	..	..	..	..	..	..	15,450	15,787	12,270	11,752
,, Central	..	..	10,000	11,107	68,000	66,027	19,885	19,266	..	..	..	..	..	..	..	..	..	..
,, Western	..	..	5,000	5,345	75,548	76,432	30,000	30,349	..	..	..	..	..	..	3,000	2,916	5,000	4,998
Kistna, Eastern	..	..	11,037	11,147	1,12,730	1,15,906	16,682	22,949	..	..	..	..	..	..	..	2,526	2,630	12,586
,, Northern	..	1,345	563	513	12,446	12,886	26,000	26,793	3,100	3,091	..	..	3,695	3,616	24,500	28,369	6,064	8,736
,, Western	..	..	17,221	16,163	95,392	95,519	1,62,818	1,52,181	..	..	..	..	..	..	..	..	..	..
Nellore	3,350	6,439	13,500	14,538	33,687	32,641	1,09,869	1,03,926	..	47	..	..	..	..	3,562	3,738	7,750	7,237
Bellary	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19,502	21,111	43,974	43,731
Cuddapah	..	..	..	..	..	..	..	..	1,04,118	1,06,189	..	525	2,000	1,932	27,869	28,811	25,669	24,340
Kurnool	150	22	5,000	4,754	59,301	57,967	..	..	1,000	1,125	700	559	500	524	5,650	5,162	11,862	11,256
West Coast	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4,000	4,088
Coimbatore	..	..	..	..	..	..	..	..	10,393	9,338	786	1,087	19,064	19,164	31,506	33,474	24,399	30,379
Salem	..	..	1,800	1,800	1,700	1,702	..	..	3,508	3,424	..	..	..	..	9,500	9,421	14,000	14,218
North Arcot	..	..	..	..	..	..	..	..	3,655	3,258	11,399	9,945	42,747	42,281	18,161	18,236	23,634	23,053
Chingleput	..	..	..	..	..	..	..	..	9,920	10,057	6,900	6,916	88,572	88,062	46,632	46,732	74,600	74,725
South Arcot	..	..	..	..	..	..	..	..	32,708	27,912	12,272	11,132	50,300	49,898	41,500	40,947	47,864	46,482
Tanjore	200	260	8,400	7,742	54,500	54,965	1,73,445	1,73,369	25,000	29,334	..	..	5,000	4,919	1,900	2,237	3,700	3,705
Negapatam	..	..	4,000	4,122	24,000	22,902	3,550	3,215	..	..	217	302	2,602	2,475	..	..	2,400	2,400
Trichinopoly	..	..	800	712	8,000	6,168	..	..	700	700	..	..	1,100	1,100	3,903	4,327	8,535	8,682
Madura	..	..	15,350	15,263	75,966	76,394	35,761	35,018	..	..	..	..	..	..	4,100	3 854	9,485	9,408
Tinnevelly	..	..	100	100	15,873	15,874	5,486	5,486	..	..	362	313	11,450	11,501	13,523	12,197	27,300	27,317
Total ..	48,907	48,757	1,15,331	1,15,478	8,02,558	8,00,457	6,14,738	6,00,717	2,03,467	2,03,216	51,781	49,486	2,47,999	2,47,077	2,83,558	2,88,335	3,68,376	3,82,311
Adjustment of old maintenance charges	..	..	— 8,735	—8,735	—1,58,008	—1,58,008	..	..	..	..	— 6,672	— 6,672	—13,144	—13,144	15,407	15,407	1,71,152	1,71,152
Net Total ..	48,907	48,757	1,06,596	1,06,743	6,44,550	6,42,449	6,14,738	6,00,717	2,03,467	2,03,216	45,109	42,814	2,34,855	2,43,933	2,98,965	3,03,742	5,39,528	5,53,463

A.—Statement showing by Divisions the grant for, and the expenditure incurred on, Original Works and Repairs under Irrigation, Navigation and Agricultural Works during 1901–1902—*cont.*

Divisions.	Provincial—43. Minor Works and Navigation—*cont.*														Local—43. Minor Works and Navigation.				Total.	
	Tank Restoration Works.		Minor Works—Revenue Department.								Agricultural works.				Original works.		Repairs.			
	Execution repairs.		In charge of Public Works Department.				In charge of Civil officers.				Original works.		Repairs.							
			Original works.		Repairs.		Original works.		Repairs.											
	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.
	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjám	..	..	..	..	..	..	..	..	..	..	1,500	1,536	4,000	4,390	..	..	..	..	1,57,486	1,53,394
Vizagapatam ..	220	228	362	363	23	23	..	..	..	..	750	722	800	892	..	..	..	..	22,955	22,658
Gódavari Eastern ..	30	30	3,200	2,450	1,400	1,257	..	..	..	..	47,034	42,091	54,371	49,119	..	..	..	..	3,00,412	2,86,497
,, Central ..	..	..	..	..	..	..	..	..	..	..	27,300	26,818	42,400	46,978	..	.	..	..	1,67,585	1,70,196
,, Western ..	..	..	800	773	50	55	..	..	..	..	15,438	16,943	9,000	11,504	..	..	..	..	1,43,836	1,49,315
Kistna Eastern ..	..	..	..	..	..	..	..	..	..	..	400	5,504	16,300	16,035	..	..	..	..	1,59,779	1,81,601
,, Northern ..	286	262	1,872	1,788	..	..	..	..	..	..	..	364	500	1,368	..	..	..	..	79,026	89,131
,, Western ..	24	..	..	..	..	..	..	..	..	..	15,376	15,726	89,600	87,683	..	..	..	..	3,80,431	3,67,272
Nellore	55,978	58,182	3,100	3,053	..	..	..	..	..	..	..	..	730	730	..	..	..	..	2,31,526	2,30,531
Bellary	40,000	40,196	..	..	3,992	4,915	..	1,200	1,707	..	..	269	..	..	..	..	..	..	1,09,175	1,11,422
Cuddapah	11,201	11,403	450	387	250	467	6,000	..	2,000	1,598	1,500	930	500	651	..	..	..	..	1,81,557	1,77,233
Kurnool	1,938	1,814	..	347	2,972	2,895	..	..	..	..	..	..	..	..	..	..	..	..	89,073	86,425
West Coast ..	..	..	..	..	700	825	..	..	..	..	..	..	..	..	..	..	..	..	4,700	4,919
Coimbatore ..	..	..	..	..	..	..	..	..	..	..	300	301	10,550	10,499	..	—1,001	1,300	1,285	98,298	1,04,526
Salem	37,492	37,438	..	51	1,633	1,948	..	..	..	..	..	..	936	927	3,000	1,575	3,000	2,251	76,569	74,755
North Arcot ..	54,437	54,533	..	..	1,800	1,846	8,000	..	..	..	..	..	..	..	..	..	..	..	1,63,883	1,53,152
Chingleput ..	24,800	24,816	..	..	..	4	6,585	..	6,993	..	1,000	..	7,100	6,671	..	..	..	..	2,73,102	2,57,988
South Arcot ..	18,500	18,506	3,540	3,541	3,000	2,937	10,000	..	9,130	..	800	849	7,232	7,254	..	..	..	..	2,36,846	2,09,458
Tanjore	..	..	385	441	..	..	..	..	..	..	2,000	1,427	1,25,089	1,24,220	..	..	..	..	3,99,619	4,02,619
Negapatam ..	2,000	2,000	10	10	230	229	..	..	..	..	2,00[illegible]	2,007	20,000	19,965	..	..	..	..	61,009	59,627
Trichinopoly ..	..	..	1,655	1,660	450	322	..	..	..	..	17,53[illegible]	17,692	52,568	54,671	..	..	..	..	95,249	96,034
Madura	17,800	17,574	..	..	1,215	1,215	865	..	1,215	..	..	..	..	..	..	..	..	..	1,62,757	1,58,726
Tinnevelly ..	51,000	50,786	3,005	3,005	2,250	2,225	..	..	4,800	..	1[illegible]	7	11,730	11,729	..	..	..	..	1,46,889	1,40,540
Total ..	3,15,706	3,17,768	18,379	17,869	19,965	21,163	31,450	1,200	25,845	1,598	1,32,94[illegible]	1,33,186	4,53,406	4,55,286	3,000	574	4,300	3,536	37,41,712	36,88,014
Adjustment of old maintenance charges	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Net Total ..	3,15,706	3,17,768	18,379	17,869	19,965	21,163	31,450	1,200	25,845	1,598	1,32,946	1,33,186	4,53,406	4,55,286	3,000	574	4,300	3,536	37,41,712	36,88,014

B.—STATEMENT showing by Systems the grants for, and expenditure incurred on, Irrigation, Navigation and Agricultural Works during 1901–1902.

—	Final grants for 1901–1902. Original works.	Repairs.	Establishment.	Tools and plant.	Total.	Expenditure incurred in 1901–1902. Original works.	Repairs.	Establishment.	Tools and plant.	Refund of revenue.	Less revenue on Capital account.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
IMPERIAL.												
35. CONSTRUCTION OF IRRIGATION.												
Capital Works.												
Rushikulya project	45,207	..	9,593	200	55,000	40,691	..	8,807	80	..	1	49,577
Works for which neither capital nor revenue accounts are kept ..	3,700	..	49,650	5,250	58, 00	8,066	..	26,850	4,796	..	..	39,712
Total ..	48,907	..	59,243	5,450	1,13,600	48,757	..	35,657	4,876	..	1	89,289
42. Major Works—Working Expenses.												
Gódávari delta system	25,500	2,69,463	2,54,692	57,375	6,07,030	27,223	2,67,534	2,44,512	57,389	70	..	5,96,728
Kistna delta system	28,821	2,20,568	2,19,529	32,032	5,00,950	27,823	2,24,311	2,16,883	31,650	829	..	5,01,496
Penner river canals system	9,591	7,943	24,207	1,053	42,794	10,629	6,897	23,955	1,126	25	..	42,632
Kurnool-Cuddapah canal	5,000	59,301	24,519	3,710	92,536	4,754	57,967	27,221	2,819	505	..	93,266
Barur tank project	1,800	1,700	1,465	..	4,965	1,800	1,702	1,489	..	..	..	4,991
Cauvery delta system	13,200	— 19,134	49,985	— 983	43,068	12,576	— 21,599	46,621	— 905	..	..	36,693
Srívaikuntam aniout system	— 252	10,665	9,205	— 78	19,540	— 252	10,666	9,014	— 78	..	..	19,350
Periyár project	10,876	54,544	29,206	2,872	97,498	10,789	54,972	23,801	3,268	..	..	92,830
Rushikulya project	12,060	39,500	12,159	600	64,319	11,401	39,999	12,281	703	1	..	64,385
Total ..	1,06,596	6,44,550	6,24,967	96,587	14,72,700	1,06,743	6,42,449	6,05,777	95,972	1,430	..	14,52,371
49. Capital Expenditure not charged to Revenue.												
Gódávari delta system	80,127	..	14,773	..	94,900	77,780	..	9,573	..	..	..	87,353
Kistna delta system	2,05,500	..	36,897	4,195	2,46,592	2,01,923	..	37,157	4,675	..	966	2,42,789
Penner river canals system	1,09,869	..	25,071	..	1,34,940	1,03,926	..	23,213	..	..	..	1,27,139
Cauvery delta system	1,76,995	..	40,709	1,000	2,18,704	1,76,584	..	24,289	2,659	..	..	2,03,532
Srívaikuntam aniout system	5,486	..	1,262	..	6,748	5,486	..	1,262	..	..	..	6,748
Periyár project	36,761	..	8,455	..	45,216	35,018	..	6,822	..	..	213	41,627
Total ..	6,14,738	..	1,27,167	5,195	7,47,100	6,00,717	..	1,02,316	7,334	..	1,179	7,09,188
Total, Imperial ..	7,70,241	6,44,550	8,11,377	1,07,232	23,33,400	7,56,217	6,42,449	7,43,750	1,08,182	1,430	1,180	22,50,848
PROVINCIAL.												
43. MINOR WORKS AND NAVIGATION.												
Class II—Minor Works and Navigation for which Capital and Revenue Accounts are kept.												
Capital Account.												
Ganjám minor rivers system	9,365	..	1,908	..	11,273	8,741	..	1,778	139	..	..	10,658
Munnyeru project	3,100	..	713	..	3,813	3,091	..	711	..	..	..	3,802
Chepaud project	1,03,700	..	23,851	..	1,27,551	1,06,186	..	23,908	..	..	..	1,30,094
Sagileru project	418	..	96	..	514	3	..	34	..	..	..	37

B.—Statement showing by Systems the grants for, and expenditure incurred on, Irrigation, Navigation and Agricultural Works during 1901-1902—*cont.*

—	Final grants for 1901-1902.					Expenditure incurred in 1901-1902.						
	Original works.	Repairs.	Establishment.	Tools and plant.	Total.	Original works.	Repairs.	Establishment.	Tools and plant.	Refund of revenue.	Less revenue on Capital account.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
PROVINCIAL—*cont.*												
43. MINOR WORKS AND NAVIGATION—*cont.*												
Class II—Minor Works and Navigation for which Capital and Revenue Accounts are kept—cont.												
Capital Account—*cont.*												
Kurnool-Cuddapah canal	1,000	..	230	..	1,230	1,125	..	259	..	..	..	1,384
Cheyar anicut system	57	..	13	..	70	95	..	22	..	..	..	117
Barur tank project	3,508	..	807	..	4,315	3,424	..	801	48	..	..	4,273
Hajipuram tank project	..	..	..	..	..	47	..	11	..	..	..	58
Vallur anicut	..	..	..	..	..	— 76	..	— 17	..	..	..	— 93
Thadapalli channel system	9,732	..	2,239	..	11,971	9,975	..	1,715	..	..	..	11,690
Arkènkotta do.	661	..	152	..	813	662	..	152	..	..	..	814
Kalingaroyen do.	..	..	..	..	..	— 1,299	..	— 298	..	..	..	— 1,597
Palar anicut system	8,518	..	1,959	..	10,477	8,080	..	1,721	..	..	..	9,809
Vriddhachelam anicut system	6,622	..	1,523	..	8,145	6,255	..	1,439	..	..	..	7,694
Shatiatope do.	4,000	..	920	..	4,920	3,996	..	919	..	..	..	4,915
Tirukkóyilúr do.	5,600	..	1,288	..	6,888	4,241	..	975	..	..	..	5,216
Lower Coleroon do.	40,750	..	8,625	..	49,375	42,076	..	7,524	..	..	..	49,600
Mehamattúr do.	736	..	169	..	905	678	..	156	..	..	..	834
Nandyar channel extension	700	..	161	..	861	700	..	161	..	..	..	861
Buckingham canal	5,000	..	1,150	..	6,150	5,208	..	1,187	..	..	..	6,395
Total	2,03,467	..	45,804	..	2,49,271	2,03,216	..	43,158	187	..	..	2,46,561
Revenue Account.												
Ganjám minor rivers system	19,145	20,466	8,082	..	48,593	18,707	21,104	9,077	..	..	..	48,888
Dondapad tank project	..	147	33	..	180	..	144	38	..	..	..	182
Munnyeru project	..	3,548	816	41	4,405	..	3,472	798	41	..	..	4,311
Sagileru do.	..	2,000	460	..	2,460	525	1,840	518	..	..	..	2,883
Cumbum tank system	700	— 293	94	— 12	489	559	— 269	67	— 12	..	..	345
Chembrambakam tank system	— 2,283	— 547	— 618	— 109	— 3,587	— 2,281	— 595	— 657	— 109	..	..	— 3,642
Madras water-supply and irrigation extension	— 3,200	3,300	2,043	— 10	2,133	— 3,216	3,315	1,986	— 10	..	..	2,075
Vallur anicut system	— 226	— 777	— 231	— 19	— 1,253	— 226	— 776	— 230	18	..	..	— 1,214
Palar do.	14,563	33,908	11,197	— 4	59,664	13,140	33,696	10,753	21	..	..	57,610
Poiney do.	1,160	9,877	2,553	..	13,590	1,122	9,911	2,526	..	..	..	13,558
Cheyar do.	1,998	10,308	2,861	..	15,167	2,005	10,116	2,771	..	..	..	14,892
Tirukkóyilúr anicut system	2,230	9,560	2,790	..	14,580	1,585	9,747	2,735	..	..	..	14,067
Mehamattúr do.	1,373	2,830	970	— 10	5,163	712	2,840	833	— 10	..	..	4,375
Vriddhachelam do.	1,098	3,700	1,113	..	5,911	1,098	3,172	1,023	..	..	..	5,293
Pelándorai do.	886	8,142	2,106	— 2	11,132	991	8,159	2,113	— 2	..	..	11,261
Shatiatope do.	2,500	6,000	1,987	100	10,587	2,501	5,939	1,981	106	..	..	10,527
Lower Coleroon do.	4,000	24,500	6,678	..	35,178	4,060	24,392	6,373	..	5	..	34,830

B.—Statement showing by Systems the grants for, and expenditure incurred on, Irrigation, Navigation and Agricultural Works during 1901-1902—*cont.*

—	Final grants for 1901-1902.					Expenditure incurred in 1901-1902.						
	Original works.	Repairs.	Establishment.	Tools and plant.	Total.	Original works.	Repairs.	Establishment.	Tools and plant.	Refund of revenue.	Less revenue on Capital account.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
PROVINCIAL—*cont.*												
43. Minor Works and Navigation—*cont.*												
Class II—Minor Works and Navigation for which Captial and Revenue Accounts are kept—cont.												
Revenue Account—*cont.*												
Thadapalli channel system	356	5,716	1,431	..	7,503	659	5,721	1,482	..	..	..	7,862
Arkenkotta do.	270	4,552	1,119	..	5,941	272	4,545	1,075	..	..	..	5,892
Kalingaroyen do.	160	8,796	2,180	..	11,136	156	8,898	2,235	..	..	..	11,289
Nandyar do.	..	1,100	259	35	1,394	..	1,100	262	32	..	..	1,394
Maradur anicut system	162	6,950	1,679	— 71	8,720	113	7,001	1,512	— 71	..	..	8,555
Chepaud project	..	..	..	..	..	..	92	..	..	..	..	92
Chilka lake canal	..	503	117	..	620	..	501	123	..	..	..	624
Buckingham do.	..	67,967	21,633	4,400	94,000	30	67,393	22,419	5,274	149	..	95,265
Vedaranniem do.	217	2,602	748	370	3,937	302	2,475	732	362	..	..	3,871
Ganjam-Gopalpur canal	..	..	13	..	13	..	..	..	..	..	..	..
Total ..	45,109	2,34,855	72,983	4,709	3,57,656	42,814	2,33,933	72,545	5,640	154	..	3,55,086
Classes III and IV—Minor Works for which neither Capital nor Revenue nor Individual Accounts are kept.												
(*a*) In charge of Public Works Department—												
Old maintenance charges	15,407	1,71,152	2,90,947	2,368	4,80,614	15,407	1,71,152	2,91,687	2,368	..	..	4,80,614
Ordinary minor Works	2,83,558	3,68,376	1,51,146	9,778	8,12,858	2,88,335	3,82,311	1,58,031	10,536	52	..	8,39,265
Tank Restoration repairs	..	3,15,706	72,613	4,735	3,93,054	..	3,17,768	72,707	4,740	..	..	3,95,215
(*b*) In charge of Revenue Department	18,379	19,965	8,818	575	47,737	17,869	21,163	9,146	598	..	..	48,776
Do. of Civil Officers	31,450	25,845	..	..	57,295	1,200	1,598	..	..	..	..	2,798
Total ..	3,48,794	9,01,044	5,23,524	17,456	17,90,818	3,22,811	8,93,992	5,31,571	18,242	52	..	17,66,668
Class V—Agricultural Works	1,32,946	4,53,406	1,31,658	8,402	7,26,412	1,33,186	4,55,286	1,31,574	8,408	827	..	7,29,281
Total, Provincial ..	7,30,316	15,89,305	7,73,969	30,567	31,24,157	7,02,027	15,83,211	7,78,848	32,477	1,033	..	30,97,596
LOCAL.												
43. Minor Works and Navigation	3,000	4,300	..	..	7,300	574	3,536	..	..	..	..	4,110
Total, 35, 42, 43 and 49 ..	15,03,557	22,38,155	15,85,346	1,37,799	54,64,857	14,58,818	22,29,196	15,22,598	1,40,659	2,463	1,180	53,52,554

Order—No. 913 I., dated 8th August 1902.

The above review indicates that the grants sanctioned for expenditure during 1901–1902 have been fully utilized except in a very few cases, in which the Executive Engineers concerned should have arranged to surrender the portions of the grants not likely to be spent.

2. Attention of Superintending Engineers will be invited to paragraphs 13 and 14 of the foregoing review.

3. Ordered that a copy of these Proceedings be forwarded to the Government of India with reference to their circular No. 21 (P.W.), dated 13th December 1882.

[Here enter No. 914 I., dated 8th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer, Public Works Department.
,, the Chief Engineer for Irrigation.
,, the Chief Engineer for Irrigation, Tank Restoration Scheme.
,, all Superintending Engineers.
,, the Superintending Engineer on Special duty.
,, the Examiner, Public Works Accounts.
,, the Financial Department.
,, the Revenue ,,

Endorsement—No. 914 I., dated 8th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. } *Spare copies*

G.O., No. 934 I., 11th August 1902.

AUGUST.

Nandyar Reservoir Project Party

The estimate of Rs. 2,000 for purchasing scientific instruments for the use of the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

From the Superintending Engineer on Special duty,				dated 17th March 1902,	No.	410.
To the	"	"	"	" 26th	"	"	"	23 Spl.
From the	"	"	"	" 16th April	"	"	"	616.
To the	"	"	"	" 6th May	"	"	"	31 Spl.
From the	"	"	"	" 2nd July	"	"	"	1009.

No. 202 I.

Note by the Chief Engineer for Irrigation.

With the first of the papers read above, the Superintending Engineer on Special duty submitted an estimate, amounting to Rs. 5,200, for instruments obtained from the Public Works Stores in connection with the investigation of the Ponnéri project. The estimate was returned to him for an explanation as to why a large number of scientific instruments was obtained in anticipation of sanction. In reply he stated that the instruments in question were obtained pending sanction to the extra establishment applied for by him, and that the marginally-noted instruments, which were in excess of the requirements, could be transferred to the Kurnool-Cuddapah canal and Nellore investigation parties. In this office No. 31 Spl., dated 6th May 1902, the Superintending Engineer was instructed to revise the estimate, so as to include only the items required for the Ponnéri project, and submit separate estimates for the instruments to be transferred to each of the other parties. He now submits an estimate of Rs. 2,000 for the instruments required for the portion of the Ponnéri project, now being investigated under the name of the Nandyar reservoir project. The estimate may be sanctioned.

Six levelling instruments.
Five tapes.
Two prismatic compasses.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

28th July 1902.

Order—No. 934 I., dated 11th August 1902.

The following estimate is sanctioned:—

Imperial.
35. Construction of Protective Irrigation Works.
Minor Works and Navigation for which neither Capital nor Revenue accounts are kept.
Tanjore Division.
3. Tools and plant.
1. Scientific instruments.
Purchasing scientific instruments for the use of the party engaged in the investigation of the Nandyar reservoir project.

	RS.
Estimate	2,000

2. This sanction is registered as No. 110 I. of 1902–1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle.
" " " on Special duty.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.
PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 935 I., 11th August 1902.

AUGUST.

Groynes in the right bank of the Cauvery

The estimate of Rs. 3,820 for constructing three stone —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From the Superintending Engineer, VI Circle, dated	20th April 1902,	No.	819 T.C.
From the „ „ „ „ „	20th „ „	„	820 T.C.
From the „ „ „ „ „	21st „ „	„	772 T.C.
To the „ „ „ „ „	30th „ „	„	14 T.C.

From F. J. WILSON, Esq., Officiating Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 21st June 1902, No. 1321 T.C.

With reference to your No. VI/14 T.C., dated 30th April 1902, returning three estimates for stone groynes as detailed in the margin I have the honour to inform you that I inspected the sites below the Cauvery bridge and above the municipal pumping station with the Executive Engineer on the 5th May. With regard to the first of these sets nothing had been done. Some protection was required at this place, and considering the lateness of the season and in view of your remarks, I directed the Executive Engineer to submit an estimate for hurdle groynes to be put up at once and which I have since sanctioned for Rs. 990.

1. Estimate, Rs. 14,400 for a groyne, Coleroon right bank below Koviladi.
2. Estimate, Rs. 3,370 for a groyne, Cauvery right bank below Cauvery bridge.
3. Estimate, Rs. 4,480 for three groynes, Cauvery right bank above municipal pumping station.

With regard to the set above the water-works, I found most of the stone already collected. This set certainly required careful attention, it is that noticed by the Chief Engineer for Irrigation in paragraph 1 of his inspection notes published with P.M.G. No. 1003 I., dated 27th November 1900. I thought the groynes provided for in the original estimate were too low down the river and unnecessarily long, but that some expensive work was necessary at this place ; and, considering the season that it should be done at once, I directed the Executive Engineer to go on with the work making the alteration above indicated and to resubmit the estimate. I have the honour to submit this estimate, which I only received on the 17th instant, for sanction. It amounts to Rs. 3,820, against Rs. 4,480 of the original estimate.

With regard to the estimate for Rs. 14,400 for a groyne below Koviladi, I understand from the Executive Engineer that, in view of the work done by the Tanjore division, the proposal to improve the alignment of the river may be postponed for this year.

ENCLOSURE.

REPORT to accompany the estimate for constructing three stone spurs in Cauvery right margin at $36\frac{1}{2}$ mile above municipal water-works.

	RS.
Amount of estimate	3,820

This is an estimate for permanently protecting the Cauvery right margin above the municipal water-works. The set at this place is the corresponding one to the Melur set in the left margin, and the run of the current is now along the right margin for a considerable distance above the water-works.

There are stone spurs above the point where the groynes shown on this plan are proposed and the margin between these is protected by modassal work. A series of hurdle groynes have been constructed just above the water-works and these, it is now proposed to replace by three stone ones as per plan attached, connected to the embankment by tail banks.

3rd June 1902.

(Signed) T. B. SANKARA SASTRI,
Supervisor.

Owing to the depth of water at No. 1, a solid groyne is proposed instead of one with an earth core.

(Signed) J. S. WILSON,
Ex. Engr., Trichinopoly Divn.

No. 200 I.

Note by the Chief Engineer for Irrigation.

	Amount. RS.
1. Constructing a stone groyne below Koviladi calingula on the right bank of the Coleroon	14,400
2. Constructing a stone groyne with an earth core at the $38\frac{1}{2}$ mile of the Cauvery right bank ..	3,370
3. Constructing three stone groynes for the protection of the right margin of the Cauvery at the $36\frac{1}{2}$ mile	4,480

With the first three papers read above, the Superintending Engineer, VI Circle, submitted estimates for the marginally-noted works for protecting the right banks of the Cauvery and the Coleroon. These estimates were returned to him for reconsideration, as it was considered that they were unnecessarily large, and that a series of cheap, low submersible groynes in place of the costly works proposed would meet the present case, such as had been successful above the Kodamurti bridge on the right bank of the Cauvery. The Superintending Engineer now recommends the postponement of the first of the above works and reports, with reference to the second, that he has sanctioned an estimate of Rs. 990 for putting up hurdle groynes for the protection of the river. As regards the third work he submits a fresh estimate, amounting to Rs. 3,820, prepared in accordance with the instructions issued by the undersigned, for permanently protecting the Cauvery right bank above the municipal water-works. The estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

27th July 1902.

ORDER—No. 935 I., dated 11th August 1902.

The following estimate is sanctioned :—

Provincial.
Irrigation.
43. Minor Works and Navigation.
Class V—Agricultural Works.
Trichinopoly Division.
Original Works.
Constructing three stone groynes in the right bank of the Cauvery at $36\frac{1}{2}$ mile.

	RS.
Estimate	3,820

2. This sanction is registered as No. 111 I. of 1902-1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle,
with plans and estimate.
,, Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 938, 939 I., 13th August 1902.

AUGUST.

Russellkonda Reservoir, Ganjam Division

Forwarding a copy of the proceedings sanctioning the estimate of Rs. 2,706 for fencing the — with "Morton's patent fencing."

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From the Superintending Engineer, I Circle, dated 7th July 1902, No. 875 G.N.

ENCLOSURE.

Note.

The ground behind the Russellkonda dam is used for grazing herds of cattle. As grass grows luxuriantly on the rear slope of the dam, cattle naturally are attracted to it, and if not kept off much damage would be done. Hitherto it has been protected with sâl post and rails, and in the first instance this was a cheap form of fence, as young sâl trees were procurable from the Public Works Department land round the reservoir. On account of the white ants, the life of this fence was comparatively short, and it had to be frequently renewed. The supply of sâl wood is nearly exhausted. It will, therefore, be cheaper in the long run to erect a permanent wire fence, and the estimate submitted provides "Morton's patent" which appears most suitable. It was thought that old rails might be procured from the Bengal-Nagpur Railway and used as uprights, but on enquiry there were none available.

(Signed) W. C. DEMORGAN,
Superintending Engineer, I Circle.

5th July 1902.

No. 201 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, I Circle, submits an estimate, amounting to Rs. 2,200, for fencing the Russellkonda reservoir with "Morton's patent fencing" in lieu of the existing jungle-wood fencing which is easily destroyed by white ants. It is stated that the fencing is necessary for protecting the reservoir from cattle tresspass. The estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

28th July 1902

ORDER—No. 938 I., dated 13th August 1902.

The following estimate is sanctioned :—

Imperial.
Famine Relief and Insurance.
35. Construction of Protective Irrigation Works.
Rushikulya Project.
Open Capital Account.
I. Head Works.
C. Works.
Fencing the Russellkonda reservoir with Morton's patent fencing.

	RS.
Estimate—	
I. Works	2,200
II. Establishment	506
Total ...	2,706

2. This sanction is registered as No. 112 I. of 1902–1903 and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 939 I., dated 13th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle, with estimate.
,, Examiner, Public Works Accounts.

ENDORSEMENT—No. 939 I., dated 13th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*	
Regd.		*Spare copies*	

G.O., Nos. 940, 941 I., 13th August 1902.

AUGUST.

Foot Bridge over the Jaffer Sahib Canal, Penner River Canals System

Forwarding a copy of the proceedings sanctioning the estimate, amounting to Rs. 2,694, for constructing a —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Superintending Engineer, II Circle, dated 18th June 1902, No. 104 I.

Enclosure.

Report to accompany the estimate for a foot bridge at 4 miles 2 furlongs of the Jaffer Sahib Canal.

	RS.
Amount of estimate	2,150

The Jaffer Sahib canal crosses an important donka at 4 miles 2 furlongs where a large number of men and cattle have to cross it. The channel is wide and when running full, is not fordable. A number of boys and girls engaged in cultivation have also to cross the channel and this is attended with some accidents. Both the banks of the channel have been cut up by cattle. To avoid this inconvenience, it is proposed to build a foot bridge as per plan and estimate herewith submitted. The work is not remunerative, but is required for the development of the project and is recommended for sanction under 49. Open Capital, Penner river canals system.

13th April 1902.

(Signed) R. A. SRINIVASA AIYANGAR,
Executive Engineer, Nellore Division.

No. 204 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, II Circle, submits an estimate of Rs. 2,150 for constructing a foot bridge at 4 miles 2 furlongs and 330 feet, of the Jaffer Sahib canal, Penner river canals system. The bridge is required in the interests of the heavy traffic at the place. The estimate as altered to Rs. 2,190 in this office may be sanctioned.

2. The work is classed as "unremunerative" as it is not directly remunerative in itself, but being required for the full development of the Penner river canals system, may be charged to the Open Capital Account thereof. It will probably be completed by the 31st March 1903.

28th July 1902.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

ORDER—No. 940 I., dated 13th August 1902.

The following estimate is sanctioned :—

Imperial.
Irrigation.
49. Capital expenditure not charged to Revenue.
Penner River Canals System.
Open Capital Account.
I. Works.
2. Main Canals and Branches.
G. Bridges.
Unremunerative Work.
Constructing a foot bridge at 4 miles 2 furlongs and 330 feet of the Jaffer Sahib Canal.

	RS.
Estimate—	
I. Works	2,190
II. Establishment	504
Total ...	2,694

2. This sanction is registered as No. 113 I. of 1902–1903, and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 941 I., dated 13th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle, with plan and estimates.
,, Examiner, Public Works Accounts.

ENDORSEMENT—No. 941 I., dated 13th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.
PUBLIC WORKS.

Recd.	1902.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 945 I., 14th August 1902.

AUGUST.

Scouring sluice in the right bank of the Wadada Channel

The revised estimate, amounting to Rs. 4,982, for constructing a new — at the site of the seven-vents aqueduct, Ganjám minor rivers system, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—again the following paper :—

G.O., No. 522 I., dated 22nd June 1896.

READ—also the following papers :—

From the Superintending Engineer,	I Circle,	dated 5th July 1899,	No.	628 G.N.
Memo. to the ,,	I ,,	,, 17th ,, ,,	,,	23 G.N.
From the ,,	I ,,	,, 18th Aug. ,,	,,	773 G.N.
Telegram from the ,,	I ,,	,, 19th Feb. 1900.		
Memo. to the ,,	I ,,	,, 12th Nov. ,,	No.	31 G.N.
From the ,,	I ,,	,, 3rd Aug. 1901	,,	943 G.N.
,, ,,	I ,,	,, 2nd June 1902,	,,	723 G.N.

ENCLOSURE.

REPORT to accompany the estimate for constructing a new scouring surplus sluice in the right bank of the Wadada channel at the seven vents aqueduct.

	RS.
Amount of estimate	4,050

The Dusi and Wadada channels cross each other at the seven vents aqueduct at $5\frac{1}{2}$ and $2\frac{1}{2}$ miles, respectively, from their head, the former running over the latter practically with no appreciable difference of bed levels, the normal bed of the latter being only 6″ below the floor or the bed level of the former. The aqueduct consequently serves only to obstruct the waterway of the Wadada channel and causes breaches above.

Between the head of each of these channels and the seven vents aqueduct and for some distance below, there are no surplus escapes of any kind to dispose of the drainages falling into these channels. Not to speak of the local drainages, the Dusi channel receives in addition about 2 miles above the seven vents aqueduct a drainage channel, called Gaziligedda, which is about twice as big in capacity as the channel itself. In fact, during heavy rains, this part of the country is all one sheet of water extending over an area of about 6 square miles and unnecessarily submerging the crops therein. To provide surplus escapes elsewhere above the seven vents aqueduct is impracticable.

These two were sanctioned in G.O., No. 522 I., dated 22nd June 1896.

Before the survey party was employed and the relative levels of the two channels could be thoroughly ascertained by them, two estimates were sanctioned—one for constructing a surplus weir in the right bank of Wadada channel, and the other on the left bank of Dusi channel, both of them contiguous to and above the aqueduct—so that the surplus through the former may be carried through the Dusi channel for about $1\frac{1}{2}$ miles and be discharged into the river through the scouring surplus sluice there; and the surplus through the latter may be carried along Buradagedda, an irrigation branch channel, for about 2 miles and then be discharged into the Wadada channel again. These estimates have, however, not been worked out, but held in abeyance, and subsequent investigation has shown that the levels on which they are based are wrong, and those works if carried out can in no way remedy the evils complained of.

It is therefore proposed—

(*a*) to remove the seven vents aqueduct altogether and to drain the Dusi channel into the Wadada channel at the site of this aqueduct ;

(*b*) to convert into a surplus channel the portion of the Dusi channel between the aqueduct and the scouring surplus sluice 2 miles below and construct a new scouring surplus sluice in the right bank of the Wadada channel just below the aqueduct at the site marked in the survey plan ;

(c) to restore the now-almost-out of use Nadimi and Kallivaram branch channels and transfer their heads to the Wadada channel above and below the aqueduct as shown in the survey;

(d) to dismantle the old dilapidated regulator across the Dusi channel about half a mile below the aqueduct and construct a new regulator and drop combined across the Wadada channel below the seven vents aqueduct at the site shown in the survey whereby to irrigate about 100 acres of high land, now irrigated by the first regulator, when the water level in the Wadada channel is below the usual F.S.L. (*Note.*—This drop is necessitated by the existing bed-fall of the Wadada channel and must be built anyhow where the windings are straightened);

(e) to block up the Dusi channel just below the existing scouring sluice near the river and for the irrigation of the wet lands below to dig a new channel from the Gangulavani tank sluice, and join it on to the existing Dusi channel below, and widen the present supply channel to the above tank as shown in the survey.

It may be noted here that the portion of the Dusi channel between the aqueduct and the existing surplus sluice near the river is sufficiently broad and deep and will act efficiently when the new scouring surplus sluice is constructed. An estimate for this masonry work, together with a design, is herewith submitted for sanction and when sanctioned will be completed before March 1903. An estimate for the other principal masonry work, namely, the new regulator across the Wadada channel with a drop combined, also accompanies this.

The site in question was inspected by the Superintending Engineer in March last.

21st June 1899.

(Signed) J. M. LACEY,
Ex. Engineer, Ganjám Division.

No. 207 I.

Note by the Chief Engineer for Irrigation.

The Dusi and Wadada channels taking off from the Vamsadhara river of the Ganjám minor rivers system intersect a few miles below their heads, the former channel being carried over the latter by means of an aqueduct called the seven-vents aqueduct. The beds of the two channels being more or less at the same level, the free flow of water down the channels is obstructed by the aqueduct and in times of floods the country above is completely submerged by water. Breaches have also occurred at various places and the aqueduct itself has been damaged so much that it is now stated to be in a dilapidated condition. To remedy the state of things the Superintending Engineer proposed in 1896 to construct two weirs just above the aqueduct—one on the right bank ofthe Wadada channel, and the other on the left bank of the Dusi channel—to carry off the surplus from them. An estimate of Rs. 3,410 for these weirs was sanctioned in G.O., No. 522 I., dated 22nd June 1896, but the works were not carried out as it was subsequently found on a thorough survey of the country that the levels did not permit of the proposed escapes acting effectively.

2. Thereupon in July 1899 the Superintending Engineer submitted an estimate of Rs. 4,050 for demolishing the aqueduct and constructing a surplus scouring sluice on the right bank of the Wadada channel immediately below the site of the aqueduct. He represented that it was not possible to provide surplus escapes higher up the channels. He also stated that it frequently happened, when the river was low, that one or the other of the channels received no supply in consequence of the river receding to the opposite bank at the head, and that it was therefore an advantage to unite the channels at a certain point and to supplement the supply of the one with that of the other.

3. As the proposals involved a remodelling of the distribution system, the Superintending Engineer was requested to obtain and forward the opinion of the Collector as to the legal aspect of the scheme. With his letter No. 943 G.N., dated 3rd August 1901, Mr. DeMorgan submitted a letter from the Collector of Ganjám in which that officer stated that it was not desirable to carry out the proposed works until a decision had been come to by Government as to the extent of free irrigation to be allowed in the village of Kaungalavalasa of the Vizianagram zamindari irrigated by a branch of the Dusi channel. The Collector considered that in other respects there were no objections to the works.

4. With his last letter read above the Superintending Engineer now forwards a communication from the Collector stating that the works need no longer be held over and that the supply to the zamindari village is not likely to be diminished as the Buradagedda supplying the village branches off from the Dusi channel above the proposed scouring sluice. The Superintending Engineer accordingly requests sanction to the plans and estimates submitted with his letter No. 628 G.N., dated 5th July 1899. The sanction applied for may be granted.

18th July 1902.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

ORDER—No. 945 I., dated 14th August 1902.

The following estimate is sanctioned in supersession of the estimates sanctioned in G.O., No. 522 I., dated 22nd June 1896:—

Provincial.
Irrigation.
43. Minor Works and Navigation.
Class II—Minor Works and Navigation for which Capital and Revenue Accounts are kept.
Ganjám Minor Rivers System.
Capital Account.
I. Works.
2. Main Canals and Branches.
6. Other cross Drainage Works.
Constructing a new scouring sluice in the right bank of the Wadada channel at the site of the seven-vents aqueduct.

Estimate—

	RS.
I. Works	4,050
II. Establishment	932
Total ...	4,982

2. This sanction is registered as No. 114 I. of 1902–1903 and will expire on the 31st March 1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle, with plans and estimate.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.
PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 946, 947 I., 14th August 1902.

AUGUST.

Under-tunnel for the Undarajavaram channel, Godavari Western Delta

Forwarding a copy of the proceedings sanctioning, with remarks, the estimate, amounting to Rs. 2,423, for constructing an —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers:—

From the Superintending Engineer, I Circle, dated 12th July 1902, No. 2024 G.W.

ENCLOSURE.

REPORT to accompany the Estimate for constructing an under-tunnel at 4 miles 20 chains of Undarajavaram channel (Kakaraparru canal).

	RS.
Estimate	1,970

The accompanying tracing shows the site of existing works, and the new under-tunnel is to be built at the same site.

2. The old work is a very ancient one built of brick and now hopelessly cracked. The square part of the vent is only 1′ 3″ × 1′ 9″ quite insufficient for the area and the wings are not long enough. Breaches occur every year round the wings and have to be made up again.

3. The drainage area is $2\frac{3}{4}$ square miles and lies between Undarajavaram and Ramayagunta channels. The new under-tunnel is to have two vents with total area of 32·56 square feet discharging 127 cubic feet per second with a head of 0·6. The calculated discharge for the drainage area ($C = 80$) comes to 157 cubic feet per second.

4. The area irrigated below the under-tunnel is 1,100 acres and in the interest of the large area, this new work is very necessary.

5. The cost of the old work may be taken as Rs. 600.

6. The work is classed as unremunerative.

7. If sanction is obtained in time to collect materials before next closure the account may be closed by 31st March 1904.

(Signed) A. C. LANGSTON,
Ex. Engr., Gódávari Western Divn.

20th June 1902.

No. 206 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, I Circle, submits an estimate, amounting to rupees 1,970, for constructing an under-tunnel at 4 miles 20 chains of Undarajavaram channel, Kakaraparru canal, Gódávari western delta, in lieu of the existing under-tunnel reported to be badly cracked. The work is necessary in the interests of a large area of 1,100 acres to be irrigated by the channel. The estimate may be sanctioned.

2. The work is classed as "unremunerative" as it is not directly remunerative in itself, but being required for the full development of the Gódávari Delta system may be charged to the Open Capital Account thereof. It will probably be completed by the 31st March 1903.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

1st August 1902.

ORDER—No. 946 I., dated 14th August 1902.

The following estimate is sanctioned :—

Imperial.
Capital expenditure not charged to Revenue.
49. Irrigation.
Gódávari Delta System.
Western Section.
Open Capital Account.
I. Works.
3. Distributaries.
Kakaraparru canal.
C. Works.
Unremunerative Work.
Constructing an under-tunnel at 4 miles 20 chains of Undarajavaram channel.

	RS.
I. Works	1,970
II. Establishment	453
Grand total ...	2,423

2. This sanction is registered as No. 115 I. of 1902–1903 and will expire on the 31st March 1903.

3. The approximate original cost of the existing under-tunnel, viz., Rs. 600, will be written back by the Examiner, Public Works Accounts, from the Capital, to the Revenue, account of the Gódávari delta system in accordance with paragraph 2157 of the Public Works Department Code.

4. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 947 I., dated 14th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, I Circle, with plans and estimates.
„ Examiner, Public Works Accounts.

ENDORSEMENT—No. 947 I., dated 14th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 961 I., 16th August 1902.

AUGUST.

Oil Pinnace

The estimate of Rs. 3,300 for purchasing a small — for use in the Gódávari Eastern Delta, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From the Superintending Engineer,	I Circle,	dated	29th April	1902,	No.	1204 G.E.
To ,, ,,	I ,,	,,	16th May	,,	,,	31 G.D.
From ,, ,,	I ,,	,,	8th July	,,	,,	1963 G.E.

ENCLOSURE.

REPORT to accompany the estimate for providing an 18-feet oil pinnace for the Gódávari Delta.

The estimate is submitted in accordance with Chief Engineer for Irrigation Memorandum No. I./31 G.D. of 16th May 1902.

The boat provided for is an 18-feet teak clinker built pinnace with 2¾ brake H.P. oil engine by Vosper of Portsmouth. This burns 2½ pints of common kerosine oil per hour. The draft of the design of boat submitted with four persons and all weights on board would be about 1 foot 8 inches, but Messrs. Burn and Co., who have made the design, have been addressed with a view to designing a broader boat of which the draft will not exceed 1 foot 3 inches and to meet the extra cost of this, a sum of Rs. 45 has been provided under the head of contingencies.

The pinnace is much wanted for inspection of lankas and anicuts especially during low river seasons.

(Signed) W. M. ELLIS, Major, R.E.,
Ex. Engr., Gódávari Eastern Divn.

No. 205 I.

Note by the Chief Engineer for Irrigation.

In the first of the papers read above, the Superintending Engineer, I Circle, stated that a small oil pinnace or launch was much wanted for inspecting the anicuts, head works and lunkas especially during the seasons when the river is very low and asked for permission to submit an estimate for the same. Permission having been granted, the Superintending Engineer submits an estimate, amounting to Rs. 3,300, for an 18-feet pinnace fitted with 2¾ brake H.P. Vosper oil engine. As the use of a light draught launch will not be as expensive as that of a large steamer and as with a launch inspections can be more rapidly made, the estimate is recommended for sanction.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

8th August 1902.

ORDER—No. 961 I., dated 16th August 1902.

The following estimate is sanctioned :—

Imperial.
42. Major Works (Working Expense).
Revenue Account.
Gódávari Delta System.
Eastern Section.
V. Tools and Plant.
4. Navigation Plant.
Purchasing an 18-feet pinnace fitted with $2\frac{3}{4}$ brake H.P. Vosper oil engine.

	RS.
Estimate	3,300

2. This sanction is registered as No. 116 I. of 1902–1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle, with plan and estimates.
" Examiner, Public Works Accounts.

IRRIGATION.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. }1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 962 I., 16th August 1902.

AUGUST.

Storage of the waters of the Tungabhadra, Kistna and Penner Rivers

Ordered that the Residents at Hyderabad and Mysore be requested to co-operate in the undertakings for the — and that a fair and reasonable share of the benefits to be derived from the storage of floodwaters within the territories of Mysore and Hyderabad be offered to those States.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

G.O., No. 1850 W., dated 30th June 1902.

No. 208 I.

Note by the Chief Engineer for Irrigation.

With reference to paragraph 4 of the Government Order read above, the Residents at Hyderabad and Mysore may be addressed in view to securing the assistance and friendly co-operation of His Highness the Nizam and His Highness the Maharajah of Mysore in determining the best sites for storage reservoirs on the Tungabhadra, Kistna and Penner, and in carrying out the schemes.

2. The officers entrusted with the investigations may be instructed to give due consideration to the probable requirements of the above States as far as irrigation from the proposed work is concerned, and to consider the advisability of offering to them a fair and reasonable share of the benefits to be derived from the storage of flood waters within their territories.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer, for Irrigation.

30th July 1902.

ORDER—No. 962 I., dated 16th August 1902.

The Residents at Hyderabad and Mysore will be addressed accordingly.

2. The suggestion in paragraph 2 of the foregoing note by the Chief Engineer for Irrigation is approved.

[Here enter No. 963 I., dated 16th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation,
with copies of letters to the Residents.
„ the Superintending Engineers, II and III Circles.
„ the Superintending Engineer on special duty.
„ the Revenue Department.
„ the Examiner, Public Works Accounts.
„ A. T. Mackenzie, Esq.
„ R. N. H. Reid, Esq.

IRRIGATION.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*
Regd.		*Spare copies*

Letter, No. 963 I., 16th August 1902.

AUGUST.

Storage of the waters of the Tungabhadra, Kistna and Penner Rivers

Requesting the Resident at Hyderabad to co-operate in the undertakings for the — and informing him that a fair and reasonable share of the benefits to be derived from the storage of flood waters within the territory of Hyderabad will be offered to that State.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Letter—from

Colonel A. W. SMART, R.E.,
Ag. Joint Secretary to the Government of Madras,
Public Works Department,
Irrigation Branch,

To

The Honourable the RESIDENT at Hyderabad.

Sir,

The Madras Government has under contemplation the undertaking of a survey with the object of devising the best means of storing the waters of the Tungabhadra, Kistna and Penner rivers and of utilising them for the extension of irrigation in the Bellary, Anantapur, Kurnool, Cuddapah and Nellore districts. As the surveys would necessarily extend over a portion of the territory of His Highness the Nizam, I am directed to ask that the permission of His Highness may be obtained for the prosecution of the necessary surveys within his territory, and that His Highness may be requested to give such assistance as may be in his power.

I am to state that the officers entrusted with the investigations have been instructed to give due consideration to the probable requirements of the State as far as irrigation from the proposed works is concerned, and to consider the advisability of offering to it a fair and reasonable share of the benefits to be derived from the storage of flood waters within its territory. I am also to ask that the Chief Engineer for Irrigation, Hyderabad, may be instructed to aid the officers of this Government in every practical way in the prosecution of these surveys which may extend over a considerable part of the Hyderabad territory bordering on the Tungabhadra and Kistna.

I have the honour to be,
Sir,
Your most obedient servant,
(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

Ootacamund,
16th August 1902.

IRRIGATION.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. } *Spare copies*

Letter, No. 963 I., 16th August 1902.

AUGUST.

Storage of the waters of the Tungabhadra, Kistna and Penner Rivers

Requesting the Resident at Mysore to co-operate in the undertakings for the — and informing him that a fair and reasonable share of the benefits to be derived from the storage of flood waters within the territory of Mysore will be offered to that State.

PUBLIC WORKS DEPARTMENT.

Irrigation.

LETTER—from

COLONEL A. W. SMART, R.E.,
Ag. Joint Secretary to the Government of Madras,
Public Works Department,
Irrigation Branch,

To

THE HONOURABLE THE RESIDENT AT MYSORE.

SIR,

The Madras Government has under contemplation the undertaking of a survey with the object of devising the best means of storing the waters of the Tungabhadra, Kistna and Penner rivers and of utilising them for the extension of irrigation in the Bellary, Anantapur, Kurnool, Cuddapah and Nellore districts. As the surveys would necessarily extend over a portion of the territory of His Highness the Maharajah, I am directed to ask that the permission of His Highness may be obtained for the prosecution of the necessary surveys within his territory, and that His Highness may be requested to give such assistance as may be in his power.

I am to state that the officers entrusted with the investigations have been instructed to give due consideration to the probable requirements of the State as far as irrigation from the proposed works is concerned, and to consider the advisability of offering to it a fair and reasonable share of the benefits to be derived from the storage of flood waters within its territory. I am also to ask that the Chief Engineer of Mysore may be instructed to aid the officers of this Government in every practical way in the prosecution of these surveys which may extend over a considerable part of the Mysore territory bordering on the Tungabhadra and Kistna.

I have the honour to be,
Sir,
Your most obedient servant,
(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

OOTACAMUND,
16th August 1902.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 969 I., 16th August 1902.

AUGUST.

Foundations of the Dam of the proposed Cauvery-Bhavani Reservoirs

The revised estimate of Rs. 4,750 for examining the soil for —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—again the following paper :—

G.O., No. 389 I., dated 31st March 1902.

Read—also the following papers :—

From the Executive Engineer, Cauvery-Bhavâni Reservoirs Investigations, dated 11th July 1902, No. 24 C.

Enclosure.

Report to accompany the estimate for examining the nature of soil and for foundation of dam in connexion with investigations of the Cauveri-Bhavâni Reservoirs Project Works.

	RS.
Amount of estimate	4,000

The estimate for Rs. 750 for examining soil for foundation of the dam of the proposed Cauvery reservoir sanctioned in Chief Engineer's No. 389 I., dated 31st March 1902, having been found insufficient for the works owing to the * peculiar nature of the ground, the accompanying estimate for Rs. 4,000 is submitted for sanction, which may be treated as a supplementary one to the former.

* It is extremely hard and difficult to work in.

(Signed) H. MOSS,
Ex. Engr. on Special Duty.

No. 209 I.

Note by the Chief Engineer for Irrigation.

In G.O., No. 389 I., dated 31st March 1902, an estimate of Rs. 750 for examining the soil for foundations of the dam of the proposed Cauvery reservoir was sanctioned. As this amount has been found to be insufficient, owing to the soil being hard and difficult to work in, the Executive Engineer, Cauvery-Bhavâni Reservoirs Investigations, now submits a supplemental estimate amounting to Rs. 4,000. As, under paragraph 797 of the Public Works Department Code, the abstract accompanying the supplemental estimate should also include the amount orginally sanctioned, the former has accordingly been revised in this office and amounts to Rs. 4,750, which may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

31st July 1902.

ORDER—No. 969 I., dated 16th August 1902.

The following estimate is sanctioned in supersession of the sanction accorded in G.O., No. 389 I., dated 31st March 1902 :—

Provincial.
43. Minor Works and Navigation.
Class IV.—Other Minor Works for which neither Capital nor Revenue nor Individual accounts are kept.
(*a*) In charge of Public Works Department.
Original Works.
Tanjore Division.

	RS.
Examining the soil for foundations of the dam of the proposed Cauvery-Bhavâni reservoirs	4,750

2. This sanction is registered as No. 117 I. of 1902–1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle.
" Executive Engineer, Cauvery-Bhavâni Reservoirs Investigations.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 970, 971 I., 19th August 1902.

AUGUST.

Programme of outlay on Productive Irrigation Works

The — for the three years ending 1905-1906, approved, and ordered to be forwarded to the Government of India.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

From the Superintending Engineer,	I Circle,	dated	21st	July 1902,	No.	2106 G.
" "	I "	"	21st	"	"	2107 G.
" "	II "	"	20th	"	"	144 I.
" "	V "	"	14th	"	"	266 E.
" "	V "	"	16th	"	"	274 E.I.
" "	VI "	"	8th	"	"	1442 T.C.
To the Examiner, Public Works Accounts,		dated	23rd	July 1902,	No.	249.
From the " "		"	25th	"	"	3182 B./B.K.

No. 210 I.

Note by the Chief Engineer for Irrigation.

The accompanying programme showing the forecast of outlay on productive irrigation works for the three years ending 1905–1906 is submitted for transmission to the Government of India with reference to G.O., No. 406 I., dated 14th May 1901. The amounts proposed for 1903–1904 and 1904–1905 in the programme approved in G.O., No. 624 I., dated 20th August 1901, have now been revised.

Kistna delta system—
1. Bank canal extension to Divi Island.

Periyár project—
2. Peranai regulator.

Cauvery delta System—
3. Improvements to drainage.
4. The Cauvery reservoir.
5. " Bhaváni do.
6. " Kistna do.
7. " Amravati do.
8. " Tambraparni (Papanasam) reservoir.
9. Extension of the Periyár project.

* For works only.

2. In the programme for unsanctioned works provision has been made for the marginally-noted works and projects. In this office Memo. No. 150 K.S., dated 8th August 1902, the Superintending Engineer, II Circle, has been instructed to submit an estimate for item 1 in consultation with the Collector. As regards item 2, an estimate, amounting to Rupees 2,95,800 * has been prepared and is now under reference with the Financial Department. Provision has been made for it in the hope that the completion report of the Periyár project which is expected to be submitted to Government shortly, will show that the project has fulfilled the conditions of a productive public work. The estimates for item 3 amount to about Rs. 23,52,000 including the establishment charge and are now before Government. Of the items 4 to 9, the Cauvery-Bhaváni reservoirs are under investigation. On the assumption that at no distant date the investigation of the remaining works will be taken up and the schemes matured, a lump sum has been provided, as it is impossible at present to say which of them is likely to be in a sufficiently advanced stage to be sanctioned within the next two years.

3. The programme should have reached the Government of India by the 31st July 1902. The delay in its submission is due to the late receipt of the information required from the Superintending Engineers, I and II Circles.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

11th August 1902.

ENCLOSURES.

FORM No. I.

Proposed Expenditure on (sanctioned) Productive Irrigation Works for the three years ending 1905–1906 in the Madras Presidency.

Name of canal.	Sanctioned estimate for works for which the construction estimates have not been closed.	Direct capital outlay. Actuals to end of 1901–1902.	Direct capital outlay. Probable during 1902–1903	Direct capital outlay. Total.	Balance to complete work.	Proposed expenditure during 1903–1904.	Proposed expenditure during 1904–1905.	Proposed expenditure during 1905–1906.	Remarks.
1	2	3	4	5	6	7	8	9	10
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
OPEN CAPITAL ACCOUNT.									
GODAVARI DELTA SYSTEM.									
Eastern Section.									
Bank Canal.									
1. Improvements to the Jonnada branch of Choppala side channel which takes off at the 9th mile of the Bank canal.	6,730	..	4,000	4,000	2,730	2,730	..	..	G.O., No. 666 I., dated 12th June 1902.
2. Improvements to Mulastanam branch of Choppala channel taking off at 8 miles 59 chains of the Bank canal.	5,040	..	3,000	3,000	2,040	2,040	..	..	,, ,, 670 I. ,, 13th ,, ,,
3. Improvements to Pamarru channel	2,850	..	2,500	2,500	350	350	..	..	,, ,, 765 I. ,, 11th July ,,
4. Improvements to Choppala channel taking off at 8 miles 57 chains.	5,690	..	2,500	2,500	3,190	3,190	..	..	,, ,, 829 I. ,, 22nd ,, ,,
5. Improvements to Choppala side channel	3,060	..	..	..	3,060	3,060	..	..	,, ,, 841 I. ,, 24th ,, ,,
Total, Gódávari Delta System ..	23,370	..	12,000	12,000	11,370	11,370	..	..	
KISTNA DELTA SYSTEM.									
Eastern Section.									
Masulipatam Canal.									
6. Extending Daggumalli main channel from 0 mile 5 furlongs to 2 miles, 4 furlongs and 146 feet.	4,170	..	1,800	1,800	2,370	2,370	..	..	G.O., No. 72 I., dated 18th Jan. 1902.
Ryves' Canal.									
7. Constructing a bridge at Manikonda crossing	3,120	989	2,000	2,989	131	131	..	..	,, ,, 697 I. ,, 14th Sept. 1901.
Pulleru Canal.									
8. Converting old Bhumicodu into an irrigation channel to be known as Unikiticodu.	2,000	..	1,000	1,000	1,000	1,000	..	..	,, ,, 343 I. ,, 22nd April ,,
9. Improving and extending Boddapadu zamindari channel and excavating a branch from it.	8,700	..	7,200	7,200	1,500	1,500	..	..	,, ,, 992 I. ,, 18th Dec. ,,
Ellore Canal.									
10. Providing counter-weighted lift shutters for the west Tammileru escape.	24,000	..	20,763	20,763	3,237	3,237	..	..	,, ,, 840 I. ,, 24th July 1902.
Total, Kistna Eastern Section ..	41,990	989	32,763	33,752	8,238	8,238	..	..	

Proposed Expenditure on (sanctioned) Productive Irrigation Works for the three years ending 1905-1906 in the Madras Presidency—*cont.*

Name of canal.	Sanctioned estimate for works for which the construction estimates have not been closed.	Direct capital outlay.			Balance to complete work.	Proposed expenditure during			Remarks.
		Actuals to end of 1901-1902.	Probable during 1902-1903.	Total.		1903-1904.	1904-1905.	1905-1906.	
1	2	3	4	5	6	7	8	9	10
Western Section.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
Bank Canal.									
Vellatur channel and its branches.									
11. Compensation for land	24,000	8	11,445	11,453	12,547	12,547	..	..	
12. Cement concrete pipe sluices for direct irrigation ..	4,050	..	2,500	2,500	1,550	1,550	..	..	
13. Compensation for land for Peddaveram branch channel *at* 1 *mile* of Vemavoram branch channel.	3,620	8	3,000	3,008	612	612	..	..	
14. Compensation for land for Raichur west branch channel at 6 furlongs of Raichur branch channel.	920	1	500	501	419	419	..	..	
15. Compensation for land for Raichur east branch channel at 6 furlongs of Raichur branch channel.	560	1	300	301	259	259	..	..	
16. Compensation for land for Kanugala branch channel at 5 miles, 4 furlongs and 607 feet.	1,570	3	1,000	1,003	567	567	..	..	
17. Compensation for land for Thotapalli branch channel at 8 miles 1 furlong.	1,410	4	600	604	806	806	..	..	
18. Compensation for land for Dhulipudi north branch channel at 9 miles.	2,510	..	1,000	1,000	1,510	1,510	..	..	
19. Compensation for land for Desammavada branch channel at 9 miles 2 furlongs and 560 feet.	410	1	100	101	309	309	..	..	G.O., No. 13 I., dated 8th Jan. 1901. (Nos. 11–27)
20. Compensation for land for drain side channel at 9 miles, 6 furlongs and 220 feet.	3,190	517	2,500	3,017	173	173	..	..	
21. Compensation for land for Pamedimarru branch channel at 2 furlongs 200 feet of drain side channel.	2,880	4	1,000	1,004	1,876	1,876	..	..	
22. Compensation for land for Dhulipudi south branch channel at 5 furlongs 230 feet of drain side channel.	1,340	..	800	800	540	540	..	..	
23. Compensation for land for Yeletipalem No. 1 branch channel at 1 mile, 0 furlong and 590 feet of drain side channel.	950	..	500	500	450	450	..	..	
24. Compensation for land for Yeletipalem No. 2 branch channel at 1 mile, 5 furlongs and 446 feet of drain side channel.	2,460	..	1,500	1,500	960	960	..	..	
25. Compensation for land for Yeletipalem No. 4 branch channel at 2 miles, 7 furlongs and 410 feet of drain side channel.	1,000	2	500	502	498	498	..	..	
26. Compensation for land for Razavole branch channel at 10 miles 2 furlongs.	1,250	2	700	702	548	548	..	..	
27. Compensation for land for Idupalli branch channel at 11 miles, 0 furlong and 100 feet.	1,360	..	600	600	760	760	..	..	
28. Constructing a tail lock, Bank canal	26,300	..	10,000	10,000	15,300	15,300	..	..	,, ,, 569 I. ,, 20th May 1902.
Main Canal.									
29. Bridge at 0 mile 6½ furlongs of Pedaravur channel ..	1,300	..	300	300	1,000	1,000	..	..	G.O., No. 486 I., dated 22nd April 1902.
30. Bridge at 23 miles, 5 furlongs and 490 feet of west side channel.	1,900	..	900	900	1,000	1,000	..	..	,, ,, 438 I. ,, 12th ,, ,,

Proposed Expenditure on (sanctioned) Productive Irrigation Works for the three years ending 1905–1906 in the Madras Presidency—*cont.*

Name of canal.	Sanctioned estimate for works for which the construction estimates have not been closed.	Direct capital outlay. Actuals to end of 1901–1902.	Direct capital outlay. Probable during 1902–1903.	Direct capital outlay. Total.	Balance to complete work.	Proposed expenditure during 1903–1904.	Proposed expenditure during 1904–1905	Proposed expenditure during 1905–1906.	Remarks.
1	2	3	4	5	6	7	8	9	10
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
Western Section—cont.									
Communur Canal.									
31. Constructing a masonry wall 200 feet long at 14 miles of the canal.	1,900	..	..	..	1,900	900	1,000	..	G.O., No. 707 I., dated 25th June 1902.
Total, Kistna Western Section ..	83,880	551	39,745	40,296	43,584	* 42,584	1,000	..	
Total, Kistna Delta System ..	1,25,870	1,540	72,508	74,048	51,822	50,822	1,000	..	
Penner River Canals.									
32. Supply channel from the Penner river above the Sangam anicut to Nellore tank for improving the distributaries to the tank.	2,12,000	83,351	83,059	1,66,410	45,590	45,590	..	..	G.O., No. 458 I., dated 28th May 1896.
33. Improvements to the Kanigiri reservoir	53,000	22,764	9,000	31,764	21,236	14,000	7,236	..	,, ,, 925 I. ,, 2nd November 1900.
34. Buddi tank drainage scheme	14,900	..	12,280	12,280	2,620	2,620	..	..	,, ,, 130 I. ,, 28th January 1902.
35. Excavating a channel to the Madirazu-Gudur tank ..	1,350	..	..	..	1,350	1,350	..	..	,, ,, 657 I. ,, 10th June ,,
36. Improvements to branch channel from No. 1 sluice of Kovur tank.	1,700	..	..	..	1,700	1,700	..	..	,, ,, 692 I. ,, 18th ,, ,,
Total, Penner River Canals ..	2,82,950	1,06,115	1,04,339	2,10,45	72,496	65,260	7,236	..	
Cauvery Delta System.									
Tanjore Division.									
37. Conversion of the Cauvery-Kodamurty dam into a regulator.	1,00,000	83,639	7,800	91,439	8,561	8,561	..	..	G.O., No. 716 I., dated 17th August 1899.
38. Altering the Cauvery-Veerasholam dams into regulators ..	39,580	25,858	8,000	33,858	5,722	5,722	..	..	,, ,, 12 I. ,, 15th January 1900.
39. Improvements to Pillai Voikal No. 3	10,810	..	2,000	2,000	8,810	5,000	3,810	..	,, ,, 59 I. ,, 15th ,, 1902.
40. Remodelling the Upper Coleroon anicut	7,65,000	5,07,420	1,25,000	6,32,420	1,32,580	1,00,000	2,580	..	,, ,, 688 I. ,, 17th June ,,
Total, Tanjore Division ..	9,15,390	6,16,917	1,42,800	7,59,717	1,55,673	1,19,283	6,390	..	
Negapatam Division.									
41. Excavating the Tondyakadu drainage channel	1,520	..	..	..	1,520	1,000	520	..	G.O., No. 430 I., dated 10th April 1902.
42. Excavating the Thillaivilagam drainage channel ..	3,200	..	..	..	3,200	3,000	200	..	,, ,, 456 I. ,, 17th ,, ,,
43. Improving the Kuppian Voikal drainage channel ..	1,250	..	..	..	1,250	1,000	250	..	,, ,, 542 I. ,, 14th May ,,
Total, Negapatam Division ..	5,970	..	..	..	5,970	5,000	970	..	
Total, Cauvery Delta System ..	9,21,360	6,16,917	1,42,800	7,59,717	1,61,643	1,24,283	7,360	..	
Periyar Project.									
44. Improvements to Anaiyur tank	2,185	..	..	..	2,185	2,185	..	..	G.O., No. 772 I., dated 12th July 1902.
Total, Works ..	13,55,735	7,24,572	3,31,647	10,56,219	2,99,516	* 2,53,920	15,596	..	
Establishment	..	..	..	..	..	53,150	3,810	..	
Tools and Plant	..	..	..	..	..	930	194	..	
Total ..	..	..	..	..	..	3,08,000	19,600	..	

* Includes Rs. 22,834 for compensation for land.

FORM No. II.

Proposed Expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905–1906.

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure. 1903–1904.	1904–1905.	1905–1906.	Remarks.
1	2	3	4	5	6	7
		RS.	RS.	RS.	RS.	
Godavari Delta System. *Eastern Section.*						
Head works	1. Constructing new under-sluices for Dowlaishweram anicut.	1,50,000	1,00,000	10,000	..	The Superintending Engineer states that the design for the work is under preparation by the Executive Engineer.
	2. Remodelling the Bobberlanka approach channel ..	10,000	5,000	..	..	It is stated that the estimate for the work is under check in the Executive Engineer's office.
Bank canal	3. Improvements to old course, Bank canal, between 3 miles 4 furlongs and 4 miles 5 furlongs.	7,000	3,000	4,000	..	It is reported that the estimate for this work is under check in the Executive Engineer's office.
Mondapett canal ..	4. Extending and improving Tulugutha No. 2 channel branch of Tapeswaram south side channel.	1,130	1,130	..	..	It is reported that the estimate for this work is under check in the Superintending Engineer's office.
	5. Constructing an iron trough over Anapalammabadra drain.	1,100	1,100	..	..	The Superintending Engineer states that estimate for this work is awaited from the Executive Engineer.
Coringa canal	6. Vella south side channel restoration	3,400	1,400	..	..	It is reported that the estimate for this work is under check in the Superintending Engineer's office.
Kovur-Manjeru junction canal.	7. Extension of Thanukuvada channel project	10,000	5,000	5,000	..	The Superintending Engineer states that estimates for these works are awaited from the Executive Engineer.
	8. Extension of Chollangi channel	4,000	3,000	1,000	..	
Injeram canal	9. Excavating a channel from Kundur channel to Parangipetta channel.	2,200	2,200	..	..	
Taki drain	10. Diversion of Taki drain	5,000	5,000	..	..	It is stated that estimate for this work is under the consideration of the Superintending Engineer.
	Total, Gódávari Eastern Section ..	1,93,830	1,26,830	20,000	..	
Central Section.						
Bank canal	11. Excavating parallel channel from above Chintallanka lock to irrigate lands between Bank canal and Vridha Gowtami drain.	10,000	3,000	4,000	3,000	It is stated that details will soon be settled and lands required will be taken up.
	12. Excavating branch channel from Vilsa channel to irrigate lands in Magem Vemavaram, etc.	10,000	5,000	2,000	3,000	Estimate is, it is stated, awaited from the Executive Engineer.
	13. New head sluice to Vilsa channel, the present head sluice to be used for No. 1 above.	1,200	1,200	..	..	Estimate awaited from the Executive Engineer.
	14. Excavating a channel from above Wadapallem lock to be carried by a syphon to left side Billasarru canal to irrigate about 1,000 acres.	12,000	3,000	4,000	5,000	It is stated that details will be settled and estimate prepared as early as possible.
	15. Kothalanka project—to take off above Annapalli lock and irrigate valuable lands in Kothalanka village which has no means of supply at present.	10,000	4,000	2,000	4,000	The work is, it is stated, being reinvestigated.
	16. Kummanapalli project	8,000	4,000	4,000	..	The estimate is stated to be under preparation in the Executive Engineer's office.
	17. Excavating new branches from Nimmakayala Kothapalli channel.	10,000	2,000	4,000	4,000	Lines for channels and drains have been settled. They have to be laid out and levels taken.
	18. Excavating new branches at the tail end of Magam channel.	4,000	..	2,000	2,000	The investigation of this work has been ordered by the Superintending Engineer.

Proposed expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905–1906—*cont.*

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure. 1903–1904.	1904–1905.	1905–1906.	Remarks.
1	2	3	4	5	6	7
Godavari Delta System —*cont.*		RS.	RS.	RS.	RS.	
Central Section—cont.						
Main canal	19. Excavating a channel from 5 miles 2 furlongs right bank of main canal for irrigating lands between Gunnaram and main canals and Vasista left bank.	10,000	3,000	4,000	3,000	It is stated that estimate is awaited from the Executive Engineer.
Amalapur canal ..	20. Devarapalli project, main channel to take off Amalapur canal right bank about 16½ miles to irrigate lands between Amalapur canal and Gorinkala drain.	12,000	5,000	3,000	4,000	It is stated that the lines for channels and drains have been recast and they are being laid out and levels taken.
	Total, Central Section ..	87,200	30,200	29,000	28,000	
Western Section.						
Kakaraparru canal ..	21. Constructing undertunnel at 4 miles 20 chains of Undragavaram channel.	1,970	700	..	..	Estimate received from the Superintending Engineer is under consideration.
	Total, Gódávari delta system ..	2,83,000	1,57,730	49,000	28,000	
Kistna Delta System.						
Eastern Section.						
Masulipatam canal ..	22. Constructing iron bridges in place of ramps on Bheemanadi channel.	10,000	6,000	4,000	..	Estimates are, it is stated, under preparation.
	23. Inampudi channel improvements	2,500	2,000	500	..	
	24. Remodelling Bhatlapenumarru channel branch of Bheemanadi channel.	7,000	4,000	3,000	..	
	25. Surplus weir at Akumarru lock	5,000	4,000	..	..	Estimates will, it is stated, be submitted shortly. The Executive Engineer expects to spend Rs. 1,000 on each of these works during the current year.
	26. Improvements to surplus weir at tidal lock	5,000	4,000	..	..	
	27. Do. to west side channel	2,500	1,500	..	..	
	28. Inlet and undertunnel at 1st mile, Bandar canal	1,500	500	..	..	
	29. Excavating Paidimukkalu drain	3,000	1,500	..	..	Estimate will, it is stated, be submitted shortly. The Executive Engineer states that Rs. 1,500 will be spent on the work this year.
	30. Improvements to Mopidevi drain	4,000	1,500	2,000	500	Work is under investigation.
	31. Excavating Mantada branch channel	3,000	2,000	1,000	..	Estimate is under preparation.
	32. Improvements to Punadipad channel	3,000	2,000	..	..	Field work is reported to have been completed and the estimate is under preparation. The Executive Engineer proposes to have a portion of the work carried out this year.
	33. Do. to Idupugollu channel	2,500	2,000	500	..	
Pulleru canal ..	34. Improvements to Kapileswarapuram tank channel ..	7,105	7,105	..	..	The Superintending Engineer states that the estimate will be submitted on the receipt of plans from the Collector to whom they are reported to have been sent for counter-signature.
	35. Do. to east side and Ramarazupalem channels ..	50,000	10,000	20,000	20,000	The work is, it is stated, under investigation.
	36. Small drain from swamp of Arisapalli and Chettipalem ..	1,200	1,200	..	..	It is stated that the estimate is under preparation.
	37. Acquisition of, and improvements to, Uyyuru zemindari channel.	2,500	1,500	1,000	..	The estimate is stated to be under reference to the Collector.

Proposed expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905-1906—*cont.*

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure. 1903-1904.	Proposed expenditure. 1904-1905.	Proposed expenditure. 1905-1906.	Remarks.
1	2	3	4	5	6	7
		RS.	RS.	RS.	RS.	
KISTNA DELTA SYSTEM—*cont.* *Eastern Section*—cont.						
Pulleru canal—*cont.*	38. Excavating Kurumaddali channel	1,500	1,000	500	..	Estimate is stated to be under revision.
	39. Do. Guddavallur affluent	2,000	1,500	500	..	The Executive Engineer states that the field work has been completed and that the estimate is under preparation.
	40. Peddamadali channel	7,290	5,000	2,290	..	The estimate is reported to have been returned to the Sub-Divisional officer for revision.
	41. Excavating Motur drain	14,000	4,000	..	..	Estimate is stated to be under scrutiny and the Executive Engineer hopes to spend Rs. 10,000 during the current year on the work.
Bantumalli canal	42. Extending Vaivaka channel	3,000	2,000	1,000	..	These works are stated to be under investigation.
	43. Do. Amudalapalli channel	4,000	2,000	2,000	..	
	44. Constructing lock in Bantumilli canal	10,000	5,000	5,000	..	The Executive Engineer reports that the necessity for this lock is under investigation.
Polraz canal	45. Excavating Kalidindicodu drain	5,000	1,000	2,000	2,000	The estimate is stated to have been called for from the sub-division officer.
	46. Improvements to Polraz drain	45,000	20,000	20,000	5,000	It is said that the levels have been completed and plotted and that estimates are under preparation.
Ellore canal	47. Improvements to east Tammileru escape	25,000	20,000	5,000	..	Estimate is said to be under preparation.
	48. Constructing culverts over side channels at cattle crossings.	2,500	1,000	1,500	..	
	49. Nidamanur channel	2,500	2,000	500	..	Field work is stated to have been completed and estimate is under preparation.
Ryves, canal	50. Vempad channel project	5,000	4,000	1,000	..	The Executive Engineer reports that the preparation of estimates is lying over pending the construction of Bezwada-Masulipatam Railway which is proposed to run on the canal banks.
	51. Cattle crossings, double at Gunadala, Ramavarapad and Enikepad slopes.	2,000	..	1,000	1,000	
Bank canal	52. Bank canal extension to Divi Island	1,50,000	50,000	50,000	50,000	The Superintending Engineer has been instructed to submit an estimate in consultation with the Collector.
	Total, Kistna Eastern section	3,88,595	1,69,305	1,24,290	78,500	
Western Section.						
Bank canal	53. Improving Potumeraka channel	10,300	5,000	5,300	..	It is reported that the estimate has been sent to the Collector for opinion.
	54. Do. Kolliparu channel	10,000	5,000	5,000	..	Field work is yet in hand.
	55. Vellatur side channel project	40,000	10,000	15,000	15,000	Estimate is said to be under preparation.
Main canal	56. Improvements to east side channel	38,500	20,000	16,500	2,000	The estimate, it is stated, will be submitted shortly.
Nizampatam canal	57. Bridge at Isandole	6,900	3,000	3,900	..	Estimate received and orders thereon will shortly be passed.
Commamur canal	58. Excavating Sekur side channel No. 1	4,310	2,000	2,310	..	The Executive Engineer states that these estimates have been sent to the Collector for opinion.
	59. Do. do. " 2	3,070	1,500	1,570	..	

Proposed expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905-1906—*cont.*

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure.			Remarks.
			1903-1904.	1904-1905.	1905-1906.	
1	2	3	4	5	6	7
KISTNA DELTA SYSTEM—*cont.*		RS.	RS.	RS.	RS.	
Western Section—cont.						
Commamur canal—*cont.*	60. Excavating Appapuram channel	97,100	10,000	30,000	57,100	The information called for from the Superintending Engineer has been received and the estimates are under consideration.
	61. Do. do drain	35,100	5,000	15,000	15,100	
	62. Improvements to distributaries of Pundla block	60,000	..	15,000	30,000	Field work for this work is in hand.
	63. Do. to 5th Reach	50,000	20,000	20,000	10,000	Field work for this is reported to have been finished.
	Total, Kistna Western Section ..	3,55,280	81,500	1,29,580	1,29,200	
	Total, Kistna Delta System ..	7,43,875	2,50,805	2,53,870	2,07,700	
Penner river canals ..	64. Allur swamp irrigation channel	25,000	..	12,500	12,500	It is stated that investigation has been mostly completed and that estimates and plans will be prepared shortly.
	65. Rebala channel from eastern channel for 1,000 acres ..	10,000	10,000	..	..	It is stated that estimate is ready for submission.
	66. Improvements to Sangam head sluice	50,000	..	25,000	25,000	It is stated that the estimate will be prepared on receipt of a design for the shutters.
	67. Do. to Runganaikulupet regulator in Sarvapalli canal.	10,000	..	10,000	..	Estimates are under preparation.
	68. Jaffer Saib's regulator	4,000	..	4,000	..	
	69. Constructing foot bridge across Jaffer Saib's canal ..	2,150	2,150	..	..	Estimate received from the Superintending Engineer and orders thereon will shortly be passed.
	70. Gandavaram channel, eastern channel	4,000	..	4,000	..	It is stated that the field work has been finished and that the estimate will be prepared.
	71. Sarvapalli extension	1,00,000	..	..	50,000	It is stated that the investigation of this work will be taken up shortly.
	Total, Penner river canals ..	2,05,150	12,150	55,500	87,500	
CAUVERY DELTA SYSTEM.						
Cauvery delta system ..	72. Fitting the Vennar-Vettar regulators with lift shutters ..	73,320	3,000	35,000	8,320	The estimate is under reference to the Superintending Engineer.
	73. Improvements to Kattar-Kaduvyar	5,29,200	1,00,000	1,50,000	2,00,000	The estimates for these works are under the consideration of Government.
	74. Do. to Harichandranadi	20,000				
	75. Do. to Nandalar	38,510				
	76. Do. to Nundodayar	11,400				
	77. Do. to Adappar	1,70,700				
	78. Do. to Palavar	89,800				
	79. Do. to Valavanar	1,08,000				
	80. Do. to Marakakarayar	84,520				
	81. Do. to Pamaniyar	1,08,900				
	82. Do. to Iyyavayyanar	52,450				
	83. Do. to Cauvery below Mayaveram	79,490				
	Total, Cauvery Delta System ..	13,66,290	1,03,000	1,85,000	2,08,320	

Proposed expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905–1906—*cont.*

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure. 1903–1904.	1904–1905.	1905–1906.	Remarks.
1	2	3	4	5	6	7
		RS.	RS.	RS.	RS.	
Periyár project	84. Excavating Thambapatti distributary channel, XII Branch channel.	10,750	6,750	4,000	..	The estimate is reported to be under scrutiny in the Divisional office.
	85. Excavating field channels for the irrigation of lands in Vellalapatty village, XI Reach Main canal.	1,630	1,630	..	..	The Superintending Engineer reports that the estimate has been returned to the Executive Engineer for revision.
	86. Excavating Sirupalai distributary channel, XI Reach ..	2,225	2,225	..	..	The estimate is under check in the Executive Engineer's office.
	87. Kondamari Odai group	* 15,000	10,000	5,000	..	
	88. Perungalakudy Kommoy group, Mélúr taluk	30,000	10,000	10,000	10,000	*Vide* remark against item 86.
	89. Improving Periyár Periyamangudi tank, Mélúr taluk ..	1,865	1,865	..	..	Estimates for these works are, it is stated, under scrutiny in the divisional office.
	90. Do. Pulungudi tank, Mélúr taluk	1,800	1,800	..	..	
	91. Improvements to Periyamelam tank, Mélúr taluk ..	1,900	1,900	..	..	The Superintending Engineer states that the estimate will be submitted shortly.
	92. Do. to Kovilpappagudi periya Kommoy, Madura taluk.	3,450	2,450	1,000	..	
	93. Improvements to Velangudi tank, Madura taluk ..	2,400	2,400	..	..	
	94. Excavating and improving Rungasamudram distributary channel.	1,000	1,000	..	..	
	95. Improvements to No. 32, Pothumboo west tank	1,485	1,485	..	..	The Superintending Engineer reports that the estimate is being delayed, pending disposal of the tank-bed land questions raised by the Executive Engineer.
	96. Do. to ,, 35, Silayaneri tank	2,125	2,125	..	..	It is stated that the estimate will be submitted shortly.
	97. Do. to Pudinettangudi Kommoy, Mélúr taluk..	3,300	2,000	1,300	..	Estimate is reported to be under preparation.
	98. Do. to No. 49, Poolangudy tank	1,560	1,560	..	..	The Superintending Engineer states that the submission of the estimate is delayed pending the disposal of the question of tank-bed lands.
	99. Do. to Theethanni tank	3,000	2,000	1,000	..	It is stated that levels and surveys for some of the tanks have been completed and that estimates for them are under preparation.
	100 Vandiyur tank group	40,000	10,000	20,000	10,000	
	101. Improvements to Sellur tank	3,000	1,500	1,500	..	
	102. Ponangudy Kommoy group, Mélúr taluk	20,000	..	10,000	10,000	
	103. Adani Kommoy group, Mélúr taluk	25,000	..	10,000	15,000	
	104. Excavating Pulipatty drainage channel	5,600	2,600	3,000	..	Estimates are stated to be under scrutiny in the Executive Engineer's office.
	105. do. Sirupalai do.	1,600	1,600	..	..	
	106 Abandoning tanks in Mangalam village, Madura taluk ..	2,300	2,300	..	..	
	107. Improving Silayaneri drain	1,600	1,600	..	..	
	108. Excavating Anaiyur drain	1,500	1,500	..	..	
	109. Do. Vilangudi drain	1,400	1,400	..	..	
	110 Vadagarai drain	1,800	1,800	..	..	
	111. Improving the Pavali drain	2,000	2,000	..	..	
	112. Peranai regulator	2,95,800	2,42,377	..	..	The estimate is now under reference to the Financial Department.
	Total, Periyár project ..	4,85,090	3,19,867	66,800	45,000	

* This is stated to be a rough approximation. The Executive Engineer reports that the levels and surveys for some of the tanks have been taken and that the estimates are under preparation.

Proposed expenditure on Productive Irrigation Works for which estimates of cost have not been sanctioned for the three years ending 1905–1906—*cont.*

Name of canal.	Name of work.	Probable cost of work.	Proposed expenditure. 1903–1904.	1904–1905.	1905–1906.	Remarks.
1	2	3	4	5	6	7
		RS.	RS.	RS.	RS.	
Srivaikuntam anicut system.	113. Improvements of Tiruchendore and Konam drains ..	9,000	4,000	5,000	..	The estimates will, it is reported, be submitted for sanction shortly.
	114. Providing lift shutters in Uppar Odai dam in Korampallam tank in place of falling shutters.	1,00,000	70,000	30,000	..	The Superintending Engineer states that orders for the preparation of an estimate for this work have been issued.
	Total, Srivaikuntam anicut system ..	1,09,000	74,000	35,000	..	
	Investigation Projects.					
	115. The Cauvery Reservoir	2,25,00,000	6,50,407	8,13,008	8,13,008	With two or more of these works sanctioned and under execution the grant would have to be considerably increased. The Tungabhadra Project and other minor projects under the Special Superintending Engineer are not included as they will be "protective" and not "productive" under the rules.
	116. The Bhavâni ,, ...	1,00,00,000				
	117. The Kistna ,, ...	3,25,00,000				
	118. The Amaravati ,, ...	50,00,000				
	119. The Tambraparni (Papanasam) reservoir	40,00,000				
	120. The extension of the Periyár project	30,00,000				
	Total ..	7,70,00,000	6,50,407	8,13,008	8,13,008	
	Total—Works ..	8,01,92,405	15,67,959	14,58,178	13,89,528	
	Establishment ..	..	3,60,631	3,35,381	3,19,591	
	Tools and plant ..	..	1,410	6,441	881	
	Total ..	..	19,30,000	18,00,000	17,10,000	

Order—No. 970 I., dated 19th August 1902.

The Superintending Engineers concerned will see that, in future, there is no delay in the submission of their programmes.

2. The programme submitted by the Chief Engineer for Irrigation is approved and will be forwarded to the Government of India with reference to its letter No. 485 C.W.I., dated 26th April 1901, printed with G.O., No. 406 I., dated 14th May 1901.

[Here enter No. 971 I., dated 19th August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineers, I, II, V and VI Circles.
,, Examiner, Public Works Accounts.

Endorsement—No. 971 I., dated 19th August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 973 I., 20th August 1902.

AUGUST.

Experiments in well irrigation

Making certain allotments for — sanctioned in the Chingleput, Salem and Coimbatore divisions.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—again the following paper :—

G.O., No. 892 I., dated 4th August 1902.

ORDER—No. 973 I., dated 20th August 1902.

G.O., No. 596 I., dated 23rd May 1902.
" " 702 I. " 24th June "
" " 870 I. " 28th July "

The following allotments are made for the experiments in well irrigation sanctioned in the Chingleput, Salem and Coimbatore divisions in the marginally-noted orders from the special lump grant of Rs. 20,000 made for the purpose in the order read above, the balance being held in reserve :—

		RS.
(1)	Experiments in the Chingleput division	3,276
(2)	Do. in the Salem do.	4,000
(3)	Do. in the Coimbatore do.	4,278

2. The amount for item 1 will be placed at the disposal of Mr. Chatterton.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineers, IV and V Circles.
" the Examiner, Public Works Accounts.
" the Revenue Department.
" A. Chatterton, Esq.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 976 I., 21st August 1902.

AUGUST.

Steam Launch

The revised estimate of Rs. 5,100 for repairing an old — at the Public Works Workshops, delivering it at the Periyar for use on the lake and fitting it up at Thekkady, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—again the following paper :—

G.O., No. 288 I., dated 20th March 1900.

Read—also the following papers :—

From F. J. WILSON, Esq., Officiating Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Tinnevelly, 22nd July 1902, No. 1047 M.D.

I have the honour to forward for sanction a supplemental estimate amounting to Rs. 1,800, for fitting up the new steam launch at Thekkady; a copy of the Executive Engineer's letter submitting the estimate is forwarded.

2. The original estimate was sanctioned in G.O., No. 288 I., dated 20th March 1900.

Enclosure.

From H. T. KEELING, Esq., Executive Engineer, Madura Division, to the Officiating Superintending Engineer, VI Circle, dated 14th July 1902, No. 610 E.

I have the honour to state that G.O., No. 288 I., dated 20th March 1900, sanctions an estimate for "repairing an old steam launch at the Public Works Workshops and delivering it at the Periyar for use on the lake." This estimate was prepared in the Shops. The Superintendent has recently informed me that his rates did not include the fitting together as might be supposed from the nomenclature of the estimate, and I accordingly enclose an estimate for the same under 42. Major Works, Repairs—Tools and Plant.

No. 212 I.

Note by the Chief Engineer for Irrigation.

In G.O., No. 288 I., dated 20th March 1900, an estimate of Rs. 3,300 for repairing an old steam launch at the Public Works Workshops, and delivering it at Periyar for use on the lake was sanctioned. The Superintending Engineer, VI Circle, now submits a supplemental estimate of Rs. 1,800 for fitting up the launch at Thekkady. Under paragraph 797 of the Public Works Department Code, the amount of the original estimate has been included in the abstract accompanying the supplemental estimate which amounts to Rs. 5,100 and may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

5th August 1902.

ORDER—No. 976 I., dated 21st August 1902.

The following estimate is sanctioned in supersession of the sanction accorded in G.O., No. 288 I., dated 20th March 1900:—

Imperial.
Irrigation.
42. Major Works (Working Expenses).
Periyar Project.
5. Tools and Plant.
4. Navigation Plant.
Repairing an old steam launch at the Public Works Workshops, delivering it at the Periyar for use on the lake and fitting it up at Thekkady.

	RS.
Estimate	5,100

2. This sanction is registered as No. 118 I. of 1902–1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, VI Circle, with estimate.
„ Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 977 I., 21st August 1902.

AUGUST.

Velgode Project Extension

The estimates amounting respectively to Rs. 1,900 and Rs. 720, for the investigation of the — and for the purchase of scientific instruments therefor, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

From the Superintending Engineer on Special Duty, dated 21st July 1902, No. 1119.

Enclosure.

Report to accompany the Estimate for Investigation of Velgode Project Extension.

This estimate provides for continuing the investigation of the Velgode channel from the Brahmala tank—where the survey and levels of the main channel, lately estimated for, ended—through the Nandyal taluk into the Sirvel taluk as far as Rudravaram, or even further if possible.

The main channel will run through the Terrai jungle along the foot of the Nallamalais, and it will be necessary to clear jungle as the survey and levels are being done, and as soon as the line of channel is fixed, to cut a line 15 or 20 feet wide through the jungle and build roughstone cairns at every furlong so as to mark the line permanently. Portions of the branch channels will also run through jungle, and should be similarly marked.

The estimate also provides for excavating trial pits along the main and branch channels to ascertain the nature of soil.

(Signed) W. P. CLAY,
Officer in charge of K.C.C.I., Party.

8th July 1902.

No. 211 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer on Special duty submits two estimates, one for the preliminary expenses in connection with the investigation of the Velgode project extension and the other for the purchase of the scientific instruments required for the same, amounting to Rs. 1,900 and Rs. 720, respectively. The former estimate provides for clearing jungle along the proposed line of the Velgode main channel and its branches and for excavating trial pits. The Superintending Engineer reports that the scientific instruments provided for in the latter estimate are those which have been transferred from the Nandyal Reservoir project, being in excess of its requirements. The estimates may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

4th May 1902.

Order—No. 977 I., dated 21st August 1902.

The following estimates are sanctioned :—

Imperial.
35. Construction of Protective Irrigation Works.
Minor Works and Navigation for which neither Capital nor Revenue accounts are kept.
Kurnool Division.
Original Works.

	RS.
I. Investigation of the Velgode project extension	1,900
II. Purchase of the scientific instruments for the Velgode project investigation	720

2. These sanctions are registered as Nos. 119 I. and 120 I. of 1902-1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, III Circle.
,, ,, ,, on Special duty.
,, Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 978, 979 I., 21st August 1902.

AUGUST.

Staff Boat

Forwarding a copy of the proceedings sanctioning the revised estimate of Rs. 3,060 for constructing a first-class — for use in the Kistna Eastern Delta.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—again the following paper :—

G.O., No. 357 I., dated 25th April 1901.

Read—also the following papers :—

From the Superintending Engineer, II Circle, dated 8th May 1902, No. 58 I.

Enclosure.

Estimate Form—Comparative statement of differences.

Description of work.	Original estimate. Quantity.	Original estimate. Rate.	Original estimate. Amount.	Revised estimate. Quantity.	Revised estimate. Rate.	Revised estimate. Amount.	More.	Less.	Explanation of difference.
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Teak-wood (Burmah) ..	167	3 9 7	601	167	3 9 7	601	..	..	
Do (Gódávari) ..	186	2 11 3	503	186	2 11 3	503	..	..	
Hull building (Carpentry)	154	0 8 0	77	154	0 8 0	77	..	..	
Superstructure (do.)	770	0 6 0	289	779	0 6 0	292	3	..	The excess quantity is owing to planking round stern deck, as per verbal orders of the Superintending Engineer.
Do. (do.)	..	..	..	118	0 4 0	30	30	..	
Thin wood-work (do.)	770	0 1 6	72	698	0 1 6	65	..	7	Quantity is reduced by omitting inside lining as per remarks on plan.
Wrought-iron work ..	2,340	0 2 2	317	2,340	0 2 2	317	..	..	
Caulking with coir ..	1,850	2 8 0	46	1,372	2 8 0	34	..	12	
Do. with cotton ..	450	3 0 0	14	1,588	3 0 0	48	34	..	Quantity is increased owing to caulking both in and outside as per orders of Superintending Engineer.
Do. with oakum ..	1,150	3 6 0	39	1,355	3 6 0	46	7	..	
Canvas paradas and awning.	310	0 3 6	68	344	0 3 6	75	7	..	
Tarring	750	1 4 0	9	750	1 4 0	9	..	..	
Dammer tarring ..	387	3 0 0	12	119	3 0 0	4	..	8	Quantity is reduced on account of not applying dammer tarring on top as per orders of Superintending Engineer.
Water closet, copper ..	..	..	15	..	..	15	..	..	
Sail complete	1	..	35	1	..	35	..	..	
Painting	2,200	4 0 0	88	3,300	5 0 0	165	77	..	The Quantity has been taken as per actual measurements and the rate is increased by putting three coats, as per orders of Superintending Engineer also to the extra value of paints obtained from the Dowlaishweram Shops.
Anchor	1	..	20	1	..	20	..	..	
Chain, iron, for anchor Rft.	100	0 6 0	38	100	0 6 0	38	..	..	
Coir fenders .. .	4	1 0 0	4	4	1 0 0	4	..	..	
Screw bolts, 3/8", for hull.	220	0 3 6	48	220	0 3 6	48	..	..	
Carpentry for meat-safe ..	..	..	6	..	..	6	..	..	
Do. for book-shelf..	..	..	5	..	..	5	..	..	
Do. for folding tables.	2	4 0 0	8	2	4 0 0	8	..	..	
Laying out plan and making templates.	..	..	15	..	..	15	..	..	
Launching	..	..	10	..	..	10	..	..	
Sundry fittings	..	..	15	..	..	15	..	..	

Estimate Form—Comparative statement of differences—*cont.*

Description of work.	Original estimate.			Revised estimate.			More.	Less.	Explanation of difference.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Gangway brackets ..	..	..	..	..	..	*20	20	..	These extra works were carried out on subsequent orders received from Superintending Engineer.
Do. fitting charges ..	..	..	..	..	..	4	4	..	
Chain for railings ..	..	..	..	40	0 4 0	10	10	..	
Fixing coir fender ..	..	..	..	..	..	20	20	..	
Iron stove with chimney ..	..	..	..	1	..	35	35	..	
Hot-box	..	..	..	1	..	30	30	..	
Zinc-sheet pipes ..	..	..	..	4	..	8	8	..	
Cast-iron hosser blocks, etc.	..	..	..	..	..	20	20	..	
Fixing cloth on top ..	..	..	..	..	..	16	16	..	
Fowl-box	..	..	..	1	..	10	10	..	
Tin trays for fowls ..	..	..	..	3	..	1	1	..	
Iron brackets for anchor ..	..	..	..	2	..	5	5	..	
Engraving figures ..	..	..	..	..	..	4	4	..	
Wrought-iron pipe for mast.	1	..	4	1	..	12	8	..	An iron mast box was made in lieu of the wrought-iron pipe, as per verbal orders of Superintending Engineer.
Hinges, door bolts, and hat hooks, etc.	..	..	30	..	..	230	200	..	This excess is owing to extra, and stronger brass fittings having been used, as per orders of Superintending Engineer, with improvements for opening and closing the doors, etc.
Screws and nails, etc. ..	..	..	15	..	..	80	65	.	
Ropes and bamboos ..	..	..	6	..	..	32	26	..	Extra ropes were supplied, and towing rope as per orders of Superintending Engineer.
Sundries	..	..	..	..	..	4	4	..	
Workshop general charges	..	..	36	..	..	5	..	31	
Centage	..	..	..	..	..	29	29	..	As part of the work was executed in the workshops, centage was charged for that portion only.
Total ..	..	..	*2,445	..	..	3,060	673	58	
Deduct the amount sanctioned ..	..	..	..	..	..	2,445	..	..	
Net increase ..	..	..	..	..	..	615	..	..	

* Sanctioned and registered as Imperial Irrigation No. 36 S. E. II. of 1901-1902.

11th April 1902. (Signed) W. VENKATAREDDI NAIDU,
Asst. Engr., Kistna Northern Divn.

3rd April 1902. (Signed) A. G. ROMILLY,
Ex. Engr., Kistna Northern Divn.

7th April 1902. (Signed) A. S. BASKETT,
Superintendent of Workshop.

24th April 1902. (Signed) H. H. O'CONNELL,
Superintending Engineer, II Circle.

No. 215 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, II Circle, submits a revised estimate, amounting to Rs. 3,060, for constructing a first-class staff boat, for which an estimate of Rs. 2,445 was sanctioned in G.O., No. 357 I., dated 25th April 1901. The excess is reported to be chiefly due to the following items not provided for in the original estimate:—

(1) Planking round the stern deck of the boat and caulking it both inside and outside;

(2) Increased rates for giving the boat three coats of paint;

(3) Extra work such as the provision of an iron stove and hot-box, etc. ; and

(4) The use of improved and stronger brass fittings for opening and closing the doors which were subsequently found necessary.

The revised estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

11th August 1902.

ORDER—No. 978 I., dated 21st August 1902.

The following revised estimate is sanctioned in supersession of the sanction accorded in G.O., No. 357 I, dated 25th April 1901 :—

Capital expenditure not charged to Revenue.
49. Irrigation.
Kistna Delta System.
Eastern Division.
Open Capital Account.
5. Tools and plant.
4. Navigation plant.
Constructing a first-class staff boat.

	RS.
Estimate	3,060

2. This sanction is registered as No. 121 I. of 1902–1903 and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 979 I., dated 21st August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle, with estimate.
„ Examiner, Public Works Accounts.

ENDORSEMENT—No. 979 I., dated 21st August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*	
Regd.		*Spare copies*	

G.O., Nos. 986, 987 I., 22nd August 1902.

AUGUST.

Lascars' sheds at the Puthaur-Solasudamaniar Regulator, Tanjore

Forwarding a copy of the proceedings sanctioning the estimate of Rs. 1,250 for constructing three —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Superintending Engineer, V Circle, dated 8th July 1902, No. 262 E.I.

Enclosure.

Report to accompany the estimate for constructing three Lascars' sheds at Puthaur-Solasudamaniar Regulator.

	Rs.
Amount of estimate	1,250

The regulator works for Puthaur-Solasudamaniar having been completed and lascars appointed to regulate water, it is found necessary to provide these lascars with quarters, and this estimate provides for the construction of the same as per plan and section at the site noted in the survey. A schedule of land to be taken up for the work is also herewith submitted for acquisition, as the building has to be constructed on patta land.

Specification.—Work will be carried out in strict accordance with the standard specification.

(Signed) C. S. SRINIVASA AIYAR,
Sub-Divisional Officer.

21st February 1902.

(Signed) L. L. WICKHAM,
Ex. Engr., Tanjore Divn.

15th March 1902.

No. 216 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, V Circle, submits an estimate of Rs. 1,220 for constructing three sheds required for the use of the lascars employed at the Putauhr-Solasudamaniar regulator, Cauvery delta system. The estimate, the amount of which has been increased in this office to Rs. 1,250, owing to errors found in the calculations, may be sanctioned.

2. The work is classed as "Unremunerative" as it is not directly remunerative in itself, but being required for the full development of the Cauvery delta system, may be charged to the Open Capital Account thereof. It will probably be completed by the 31st March 1903.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

12th August 1902.

ORDER—No. 986 I., dated 22nd August 1902.

The following estimate is sanctioned :—

Imperial.
Capital expenditure not charged to Revenue.
49. Irrigation.
Cauvery Delta System.
Tanjore Division.
Open Capital Account.
I. Works.
2. Main Canals and Branches.
K. Buildings.
Unremunerative Work.
Constructing three lascars' sheds at the Puthaur-Solasudamaniar Regulator.

	RS.
Estimate	1,250

2. This sanction is registered as No. 122 I. of 1902–1903, and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 987, I., dated 22nd August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle, with plans and estimate.
" Examiner, Public Works Accounts.

ENDORSEMENT—No. 987 I., dated 22nd August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 988 I., 22nd August 1902.

AUGUST.

Revetments of the Muniyeru Main Channel

The estimate, amounting to Rs. 9,950, for raising the existing and constructing new —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From H. H. O'CONNELL, Esq., Officiating Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezwada, 7th May 1902, No. 55 I.

I have the honour to forward herewith, for favour of your approval and *early sanction* of Government, plan and estimate, amounting to Rs. 9,950, for raising the existing revetments at the under-tunnels at $\frac{2}{3}$ mile, $\frac{4}{5}$ mile and $\frac{6}{5}$ miles, and constructing new revetments at $\frac{1\ 2}{6}$ miles, $\frac{1\ 6}{6}$ miles and $\frac{2\ 3}{2\frac{1}{2}}$ miles and $\frac{2\ 5}{1}$ miles of Muniyeru main channel, chargeable to 43. Capital account of the Muniyeru project.

2. The necessity for the work is explained in the report accompanying.

3. The work is considered urgent, and early sanction to the estimate is therefore requested.

Memo. No. II/106 K.S.

With reference to the estimate received with letter No. 55 I., dated 7th May 1902, from the Superintending Engineer, II Circle, the undersigned has the honour to request that the Superintending Engineer will be so good as to report how leakage can be stopped by the proposed revetments. It should also be reported if the estimate was prepared after an inspection of the locality by the Executive Engineer, Kistna Northern division, or the Superintending Engineer.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

13th May 1902.

To the Superintending Engineer, II Circle (with enclosure).

From H. H. O'CONNELL, Esq., Officiating Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezwada, 20th May 1902, No. 77 I.

With reference to your No. II/106 K.S., dated 13th May 1902, I have the honour to state that the locality was inspected by Colonel Rawson. In order to stop the leakage, the revetment has to be grouted and this has been allowed for in the estimate.

No. 217 I.

Note by the Chief Engineer for Irrigation.

The Muniyeru channel, which was opened for irrigation in 1897, badly breached in 1900 in several places, the breaches, especially at the under-tunnels at 2 miles 3 furlongs, 4 miles 5 furlongs, and 6 miles 5 furlongs, being the largest. These breaches are attributed to bad soil and to the channel running in embankment at the above places. In order to protect the banks from further breaches the revetments at the under-tunnels were extended to the extent then considered necessary, and raised to 1 foot above the F.S.L., or 6 feet above the bed level of the channel.

In the irrigation season of 1901, before a supply of 2 feet was allowed in the channel below the first reach, breaches occurred at $\frac{12}{6}$, $\frac{16}{6}$ and $\frac{25}{1}$ miles, besides leakages generally throughout the banks. With a view to improve the irrigation under the project, the Superintending Engineer proposes to raise the F.S.L. of the channel by 1 foot. He submits an estimate, amounting to Rs. 9,950, in which provision is made for extending and raising the existing revetment at the under-tunnels at $\frac{2}{3}$, $\frac{4}{5}$, and $\frac{6}{5}$ miles and providing revetments at the under-tunnels at $\frac{12}{6}$, $\frac{16}{5}$, $\frac{23}{2\frac{1}{2}}$ and $\frac{25}{1}$ miles to $1\frac{1}{2}$ feet above the proposed F.S.L. or $7\frac{1}{2}$ feet above the bed level. The estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

12th August 1902.

ORDER—No. 988 I., dated 22nd August 1902.

The following estimate is sanctioned from the balance of the provision for unforeseen works of the Muniyeru project which will then be reduced to Rs. 20,430 :—

Provincial.
Irrigation.
43. Minor Works and Navigation.
Class II—Minor Works and Navigation for which Capital and Revenue accounts are kept.
Muniyeru Project.
Capital Account.
I. Works.
2. Main canals and Branches.
L. Earth work.

Raising the existing revetments at under-tunnels at $\frac{2}{3}$, $\frac{4}{5}$ and $\frac{6}{5}$ miles and constructing new revetments at $\frac{12}{6}$, $\frac{16}{5}$, $\frac{23}{2\frac{1}{2}}$ miles and $\frac{25}{1}$ miles of the Muniyeru Main Channel.

Estimate—

	RS.
I. Works	9,950

2. This sanction is registered as No. 123 I. of 1902-1903 and will expire on the 31st March 1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle, with plan and estimate.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*	
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G.O., Nos. 989, 990 I., 22nd August 1902.

AUGUST.

Under-tunnel, Narasapur Canal

Approving the revised estimate, amounting to Rs. 39,881, for constructing an —, and for improving the Rustambada drain, Gódávari western delta; and forwarding a copy of the proceedings, together with the revised estimate and plans, for sanction.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—again the following papers:—

G.O., No. 491 I., dated 18th June 1901.
" " 592 I. " 30th July "

READ—also the following papers:—

From the Superintending Engineer, I Circle, dated 3rd July 1902, No. 1865 G.W.

[*Statement.*

ENCLOSURE.

ESTIMATE FORM—Comparative statement of differences.

Description of work.	Original estimate. Quantity.	Original estimate. Rate.	Original estimate. Amount.	Revised estimate. Quantity.	Revised estimate. Rate.	Revised estimate. Amount.	More.	Less.	Explanation of difference.
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Compensation of land for permanent occupation.	4·96 acres.	256 0 0	1.270	8·62	256 0 0	2,207	937	..	The line originally chosen, according to the survey, fixed the site of the aqueduct just opposite Nahalava drain and the extension of Rustambada drain below the aqueduct ran very close, indeed, to the lock site, the object being no doubt to avoid taking up more land than could be avoided. When Mr. Marshall inspected the line subsequently he decided to shift the centre line about 100 feet further away from the lock channel which involved the permanent acquisition of about 3¾ acres of land in excess of what was provided in the original estimate land plans and schedules were accordingly prepared and the work is proceeding on the new line. The subject of this alteration which is no doubt an improvement on the original proposal has not been put on proper record, and there has been some difficulty in tracing it. A tracing showing the line finally chosen accompanies this comparative statement. The old and new lines are almost the same length and no additional earthwork is involved as the ground is almost the same level.
Do. do. ..	3·5 ,,	300 0 0	1,050	3·83	300 0 0	1,149	99	..	
Total ..	..	..	2,320	..	..	3,356	1,036	..	
Deduct—amount sanctioned in Superintending Engineer's Rigister No. 294 of 1901–1902 ..	..	..	..	..	..	2,320	..	..	
Net amount to be sanctioned ..	..	..	..	..	..	1,036	..	..	
Concrete in surki mortar	276·6	19 7 0	5,377	274·6	19 7 0	5,338	..	39	The concrete over arch is less, as the width of the vents was reduced by 6″.
Rubble in surki mortar	134	20 1 0	2,688	150·5	20 9 0	3,095	407	..	On account of the increased width of the abutments and the backing over the abutments, 8 annas extra per unit for conveyance of stones from stacked heap to the work has also been provided for. Also 20 units of stone short supplied by quarries has to be made up and conveyed from other works.
Rubble in mortar	25·25	18 1 0	456	24·4	18 9 0	471	15	..	Due to cutstone cutwaters instead of rubble cutwaters being provided and 8 annas per unit extra as above.
Cutstone in surki mortar	252 c. ft.	0 11 3	177	553	0 11 3	392	215	..	The original estimate provided for cutwaters in rubble work: now cutstones have been provided for. Further, there occurred a mistake in the original estimate in the quantity of voussoirs 1′ 1″ having been put by mistake for 4′ 6″ lengths.
Cutstone in mortar	242 ,,	0 11 0	166	322 c. ft.	0 11 0	221	55	..	Cutstone, cutwaters have now been provided for instead of rubble cutwaters of the original estimate.
Apron and revetment	11·4	9 9 0	109	11·4	9 9 0	109	..	..	
Gravel	1·7	6 1 0	10	1·7	6 1 0	10	..	..	
Grouting	3·5	3 0 0	11	3·5	3 0 0	11	..	..	
Pointing with surki mortar	44·2	3 0 0	133	44·2	3 0 0	133	..	..	
Plastering with surki mortar	24·5	3 0 0	74	24·5	3 0 0	74	..	..	
Brick archwork in surki mortar	42·9	37 4 0	1,598	38·8	37 4 0	1,445	..	153	On account of a mistake in the original estimate in the length of the archwork and also the reduction of each of the vents by 6″.
Screw gearing shutters with beams, etc. ..	No. 2	150 0 0	300	No. 2	250 0 0	500	200	..	Excesses due for allowing copper sheeting which is not provided in the original estimate.
Excavating foundations	77	5 0 0	385	250	5 0 0	1,250	865	..	The provision in the original estimate was utterly insufficient. The actual work has now been noted, the excavation was dug to a slope of 2 to 1 all round to avoid slips.

Estimate Form—Comparative statement of differences—*cont.*

Description of work.	Original estimate.			Revised estimate.			More.	Less.	Explanation of difference.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Filling in round the work and conveying and throwing the remaining earth in convenient situations.	..	..	..	250	3 7 6	867	867	..	Not provided in the original estimate. This amount will be quite necessary to dispose of the spoil dug out as well as to do the actual filling in.
Pites, 9′ long and 6″ diameter	..	..	..	No. 90	1 0 0	90	90	..	Found necessary in actual work.
Country wood work	..	..	..	81 c. ft.	1 4 0	101	101	..	Found necessary in actual work; when concrete foundation was dug straight to the required width, planks were fixed so that earth all round may not slip.
Baling from—11·67	..	..	1,500	..	..	1,500	..	..	
Centerings..	..	..	150	..	..	150	..	..	
Lime mortar and engine sheds	..	..	50	..	..	150	100	..	Provision of the original estimate insufficient for a lime shed, mortar shed and a shed for pumping engine.
Making approaches after completion	..	..	100	..	..	100	..	..	
Petty supervision	..	..	385	..	..	480	95	..	Due to corresponding increase of work.
Contingencies	..	..	671	..	..	813	142	..	Due to corresponding increase of work.
Diversion of roads on both sides	No. 2	500 0 0	1,000	No 2	100 0 0	200	..	800	Ascertained from actual work.
Total ..	..	..	15,340	..	..	17,500	3,152	992	
Deduct—amount sanctioned in Superintending Engineer's Register No. 294 of 1901-1902	..	..	..	..	..	15,340	992	..	
Net amount to be sanctioned ..	..	..	..	..	..	2,160	2 160	..	
Concrete in surki mortar	17·3 units.	21 5 0	369	17·3 units	21 5 0	369	..	..	
Rubble in mortar	13·2 ,,	19 14 0	262	13·2 ,,	19 14 0	262	..	..	
Cutstone in mortar	135 c. ft	0 11 0	93	135 c. ft.	0 11 0	93	..	..	
Apron and revetment	5·5 units.	10 11 0	59	5·5 units.	10 11 0	59	..	..	
Grouting	1·8 ,,	3 0 0	5	1·8 ,,	3 0 0	5	..	..	
Pointing with Surki mortar	5·0 ,,	3 0 0	15	5·0 ,,	3 0 0	15	..	..	
Excavating foundation	..	..	20	..	..	20	..	..	
Wrought-iron work	4,080 lb.	0 2 0	510	4,739 lb.	0 2 0	592	82	..	The workshops explain that the excess is due to larger sizes of angle and T iron having been used and to certain additional work ordered by Executive Engineer.
Lead sheeting	500 ,,	0 3 0	94	500 ,,	0 3 0	94	..	..	
Wood work	17½ c. ft.	3 14 0	68	..	..	66	..	2	
Painting	..	..	..	411 units	3 10 0	15	15	..	Necessary work carried out by the workshops but not included in the estimate.
Tarring	..	..	..	406 ,,	0 12 0	3	3	..	Necessary work carried out by the workshops but not included in the estimate.
Baling	..	..	150	..	..	150	..	..	
General charges	672	5 0 0	34	..	..	39	5	..	Actual charges by the workshops.
Workshop centage	..	20 0 0	134	..	..	162	28	..	Actual charges by the workshops.
Carriage to site	..	..	15	..	..	15	..	..	
Petty supervision	..	3 0 0	45	..	..	45	..	..	
Contingencies	..	5 0 0	77	..	..	76	..	1	
Total ..	..	..	1,950	..	..	2,080	133	3	
Deduct—amount sanctioned in Superintending Engineer's Register No. 294 of 1901-1902.	..	..	..	..	..	1,950	..	..	
Net amount to be sanctioned ..	..	..	..	..	..	130	..	..	

Estimate Form—Comparative statement of differences—*cont.*

Description of work.	Original estimate.			Revised estimate.			More.	Less.	Explanation of difference.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Concrete in surki mortar	18·10 units.	21 3 0	384	18·10 units.	21 3 0	384	..	..	
Rubble in mortar	15 6 ,,	19 11 0	307	15·6 ,,	19 11 0	307	..	..	
Cutstone in mortar	143 c. ft.	0 11 0	98	143 c. ft.	0 11 0	98	..	..	
Apron and revetments	5·9 units.	10 9 0	62	5·9 units.	10 9 0	62	..	..	
Grouting	2·0 ,,	3 0 0	6	2 0 ,,	3 0 0	6	..	..	
Pointing with surki mortar	5·0 ,,	3 0 0	15	5·0 ,,	3 0 0	15	..	..	
Excavating foundations	..	..	20	..	..	20	..	..	
Wrought-iron work	4,550 lb.	0 2 0	569	5,218 lb.	0 2 0	652	83	..	The workshops explain that the excess is due to larger sizes of angle and T iron having been used and to certain other small alterations ordered by Executive Engineer.
Lead sheeting	572 ,,	0 3 0	107	572 ,,	0 3 0	107	..	..	
Woodwork wrought and put up	17¼ c. ft.	3 14 0	68	..	..	66	..	2	
Painting	..	..	..	4·68 units.	3 10 0	17	17	..	Necessary work not provided in the original estimate but carried out in the workshops.
Tarring	..	..	..	4·56 ,,	0 12 0	3	3	..	
Baling water	..	..	150	..	..	150	..	..	
General charges	74¼ cwt.	5 0 0	37	..	..	47	10	..	Actual charges made by the workshops.
Workshop centage	..	20 0 0	149	..	..	198	49	..	
Carriage to site	..	..	15	..	..	15	..	..	
Petty supervision	..	3 0 0	48	..	..	48	..	..	
Contingencies	..	5 0 0	65	..	..	65	..	..	
Total ..	..	..	2,100	..	..	2,260	162	2	
Deduct—amount sanctioned in Superintending Engineer's Register No. 294 of 1901-1902.	..	..	..	..	..	2,100	..	..	
Net amount to be sanctioned ..	..	..	..	..	..	160	..	..	
Concrete in surki mortar	19 units.	19 7 0	369	28·2	19 7 0	548	179	..	Concrete was ordered by Executive Engineer for the full length between the abutments. The soil was slushy and the foundations for concrete blocks could not be conveniently dug as per estimate.
Rubble in mortar	16·01	18 1 0	289	15 units.	18 1 0	271	..	18	Due to the piers being built of cutstone instead of rubble in mortar.
Cutstone in mortar	155 c. ft.	0 11 0	107	250	0 11 0	172	65	..	The increase is due to the piers being built of cutstones, the original estimate provision being for rubble. The piers are only 2' wide and the changes considered necessary for the stability of the work.
Apron and revetment	6·4	9 9 0	61	6·4	9 9 0	61	..	..	
Grouting	2 units.	3 0 0	6	2 units.	3 0 0	6	..	..	
Pointing with surki mortar	5 units.	3 0 0	15	5 units.	3 0 0	15	..	..	
Excavating foundations	..	..	20	..	..	20	..	..	
Wrought-iron work	4,910 lb.	0 2 0	614	5,480 lb.	0 2 0	685	71	..	As explained by the workshops the excess is due to a larger size of angle and T iron being provided and certain other small alteration ordered by Mr. Marshall.

Estimate Form—Comparative statement of differences—*cont.*

Description of work.	Original estimate.			Revised estimate.			More.	Less.	Explanation of differences.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.			
1	2	3	4	5	6	7	8	9	10
		RS. A. P.	RS.		RS. A. P.	RS.	RS.	RS.	
Lead sheeting	737 lb.	0 3 0	138	737 lb.	0 3 0	138	..	..	
Wood-work	$17\frac{1}{2}$ c. ft.	3 14 0	68	$17\frac{1}{2}$	3 14 0	68	..	..	
Baling water	..	L. S.	150	..	..	100	..	50	
General charges	..	..	41	..	..	46	5	..	As per actual charges made by Government workshops.
Workshop centage	..	..	164	..	..	191	27	..	
Carriage to site	..	..	15	..	..	15	..	..	
Painting	..	..	..	486 sq. ft.	3 10 0	18	18	..	Necessary works not provided for in the estimate, but carried out by the Government workshops.
Tarring	..	..	..	490 c. ft.	0 12 0	4	4	..	
Petty supervision	..	..	50	..	..	55	5	..	
Contingencies	..	..	63	..	..	62	..	1	
Total ..	..	..	2,170	..	..	2,475	374	69	
Deduct—amount sanctioned in circle register No. 294 of 1901-1902.	..	..	..	..	..	2,170	69	..	
Net amount to be sanctioned ..	..	..	..	..	..	305	305	..	
Compensation	..	..	2,320	..	..	3,356	1,036	..	Excesses explained in individual comparative statements accompanying each separate estimate.
Under-tunnel	..	..	15,340	..	..	17,500	2,160	..	
Iron trough over Koppanu channel	..	..	1,950	..	..	2,080	130	..	
Do. Rustambada channel	..	..	2,100	..	..	2,260	160	..	
Do. Chinamamidipalli, Malapalli channel.	..	..	2,170	..	..	2,475	305	..	
Extension of Rustambada drain below and above proposed under-tunnel.	..	..	5,290	..	..	5,290	..	..	
Demarcation stones	..	..	90	..	..	90	..	..	
Establishment	..	..	6,196	..	..	6,830	634	..	
Tools and plant	..	..	..	..	..	..	..	..	
Total ..	..	..	35,456	..	..	39,881	4,425	..	
Deduct—amount sanctioned in Superintending Engineer's Register No. 294 of 1901-1902.	..	..	..	..	..	35,456	..	..	
Net amount to be sanctioned ..	..	..	..	..	..	4,425	..	..	

(Signed) A. C. LANGSTON,
Ex. Engr., Gódávari Western Divn.

22nd May 1902.

No. 213 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, I Circle, submits a revised estimate of Rs. 39,881 * for constructing an under-tunnel at 38 miles, 30 chains, Narasapur canal, and improving the Rustambada drain, Gódávari western delta, involving an excess of Rs. 4,425 over the sanction accorded by the Government of India in their letter printed with the second of the orders read above. The excess is reported to be chiefly due to the following causes:—

* Exclusive of the tools and plant charge.

(1) Alteration of the original site of the under-tunnel consequent on the realignment of the Rustambada drain.

(2) Inadequate provision made in the original estimate for excavating foundations.

(3) Additional use of rubble in surki mortar on account of increased width of the abutments and backing over the same.

(4) Cutwaters having been built of cutstone in mortar instead of rubble in mortar as originally provided for.

(5) Copper sheeting used for the screw gearing shutters and additional wrought-iron work, painting and tarring for which no provision was made in the original estimate.

(6) Excess charge made by the workshops for the proposed iron troughs.

The revised estimate is recommended for sanction, with the remark that the Executive Engineer should have previously obtained the Superintending Engineer's approval of the alterations made in the original design.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

5th August 1902.

ORDER—No. 989 I., dated 22nd August 1902.

The revised estimate, amounting to Rs. 33,051 or Rs. 39,881, including establishment charges, for constructing an under-tunnel at 38 miles, 30 chains, Narasapur canal, and improving the Rustambada drain, Gódávari western delta, is approved.

2. Ordered that a copy of these proceedings, together with the revised estimate and plans for the work referred to, be forwarded to the Government of India with a request that sanction thereto may be accorded at an early date in lieu of that communicated in their letter No. 817 C.W.I., dated 11th July 1901.

[Here enter No. 990 I., dated 22nd August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner of Public Works Accounts.

ENDORSEMENT—No. 990 I., dated 22nd August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

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G.O., Nos. 991, 992 I., 22nd August 1902.

AUGUST.

Right Branch of No. 14 Distributary, Rushikulya Canal

Forwarding a copy of the proceedings sanctioning the estimate, amounting to Rs. 9,315, for extending the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From the Superintending Engineer, I Circle, dated 8th July 1902, No. 896 G.N.

ENCLOSURE.

REPORT to accompany plans and estimates for extending the Right Branch of No. 14 Distributary with branches.

		RS.
Estimate amount	... ...	7,600

This branch was excavated for a length of 1,700 feet and was left incomplete. It is proposed to extend it, with two branches, one from its left, called Baguda branch and the other Sunnadara branch. The former (Baguda branch) has a length of $\frac{5}{8}$ mile + 100 feet and it is proposed to end it at a site, where no further extension is necessary, owing to the fall of country ; while the latter (Sunnadara branch) is proposed to be carried over the ridge on to Sunnadara and other villages, irrigating the lands on both the sides to an extent of 1,451 acres with necessary drops, flush outlets and a terminal weir.

This part of the country has several large plots of waste and poramboke lands which shall be sold to the best advantage after this extension of right branch of No. 14 Distributary is completed.

(Signed) P. RAMNARAYAN PONDAI,
Special Sub-divisional Officer.

2nd May 1902.

(Signed) M. LOAM,
Ex. Engr., Ganjám Divn.

The channel will not be dug, until we find what the land will fetch.

(Signed) W. C. DEMORGAN,
Superintending Engineer, I Circle.

15th May 1902.

Estimate Form—Abstract—Classified.

Sub-head.	Names of works.	Amount of estimate for individual works.	Total of sub-heads.	Total for each canal or distributary.	Total of each main head.
1	2	3	4	5	6
	FAMINE RELIEF AND INSURANCE.	RS.	RS.	RS.	RS.
	35. CONSTRUCTION OF PROTECTIVE IRRIGATION WORKS (OPEN CAPITAL ACCOUNTS).				
	Rushikulya Project.				
	Rushikulya Section.				
	I. Works.				
	3. Distributaries.				
	Extending the Right Branch of No. 14 Distributary.				
B. Land ..	Compensation for land	145	145		
C. Works ..	Constructing regulating dam at head	105			
	,, sluice and regulating dam combined at bifurcation	185			
	,, drop No. 1 to Sunnadara branch ..	250			
	,, ,, ,, 2 ,, ..	105			
	,, ,, ,, 3 ,, ..	270			
	,, ,, ,, 4 ,, ..	270			
	,, ,, ,, 5 ,, ..	250			
	,, weir ,, 1 ,, ..	135			
	,, ,, ,, 2 ,, ..	135			
	,, flush escape No. 1 ,, ..	145			
	,, ,, ,, 2 ,, ..	145			
	,, ,, ,, 3 ,, ..	145			
	,, Terminal weir ,, ..	75			
	,, drop No. 1 to Baguda branch	190			
	,, ,, ,, 2 ,, ...	190			
	,, terminal weir ,, ...	50	2,645		
L. Earthwork ..	Excavating channel	4,750	4,750		
O. Miscellaneous.	Fixing mile and furlong stones	60	60		
	Total, I. Works	..	..	7,600	
	II. Establishment ..	..	..	1,715	
	Grand Total ..	..	...	9,315	

(Signed) P. RAMNARAYAN PONDAI,
Special Sub-divisional Officer.

30th April 1902.

(Signed) M. LOAM,
Ex. Engr., Ganjám Divn.

No. 218 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, I Circle, submits an estimate of Rs. 7,600 for extending the right branch of No. 14 Distributary, Rushikulya canal, Rushikulya project. It is reported that the proposed extension is necessary for the irrigation of waste lands to the extent of 1,451 acres. The estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

4th August 1902.

ORDER—No. 991 I., dated 22nd August 1902.

The estimate, amounting to Rs. 7,600 or Rs. 9,315, including the charge for establishment for extending the right branch of No. 14 Distributary, Rushikulya canal, is sanctioned.

2. This sanction is registered as No. 124 I. of 1902-1903 and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 992 I., dated 22nd August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle, with plans and estimates.
" Examiner of Public Works Accounts.

ENDORSEMENT—No. 992 I., dated 22nd August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

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G.O., Nos. 993, 994 I., 22nd August 1902.

AUGUST.

Velangudy Periya Kanmoy tank, Periyar Project

Forwarding a copy of the proceedings sanctioning the estimate, amounting to Rs. 2,730, for improvements to the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From F. J. WILSON, Esq., Officiating Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 12th July 1902, No. 987 M.D.

I have the honour to forward herewith an estimate, amounting to Rs. 2,220, for improvements to No. 37 Velangudy Periya Kanmoy, a Periyár affected tank situated about half a mile to the west of Karisalkulam village in the Madura taluk and affecting the South Indian Railway.

2. The necessity for the estimate is explained in the report. I forward also an estimate for repairs to the tank, so that the provisions may be dealt with together.

ENCLOSURE.

REPORT to accompany the estimate for repairs and improvements to No. 37 Velangudy Periya Kanmoy.

		RS.
Amount of estimate	Improvements	2,220
	Repairs	905
	Total of estimate ...	3,125

General.—This is a railway-affecting tank situated about half a mile to the west of Karisalkulam village. It has an ayacut of 794 acres yielding an annual revenue of about Rs. 4,909 to Government. It receives Periyár supply from Adalai distributary in addition to the supply from its own drainage area.

Surplus arrangements.—The surplus is at present disposed of over the calingulah and the roughstone byewash at the left flank, and through a mamool breach at the right flank. The masonry calingulah is in fair orders, but requires slight repairs, for which provision is made in the estimate. The damstones will also be cut down to F.T.L. A portion of the paved byewash is badly damaged owing to the rapid fall of the ground in rear; it is proposed to replace the byewash by a masonry weir at the site of the mamool breach as per accompanying plan and estimate.

Sluices.—There are at present four masonry sluices and two temporary sluices for high level lands. Masonry sluices Nos. 1 and 3 cannot be regulated, provision is made in the estimate for providing front heads, etc. The temporary sluice between sluices Nos. 2 and 3 will be replaced by a permanent pipe sluice for the irrigation of the high level lands. As sluice No. 4 is not in good order, it is proposed to replace it by a new sluice. Another pipe sluice will also be constructed at the right flank for the irrigation of lands between Kondamari odai and the bund.

The bund is low and weak in places and will be raised to 3 feet above M.W.L., with a top width of 4 feet and side slopes of $1\frac{1}{2}$ to 1 both in front and rear.

The work will be carried out in accordance with the current departmental standard specifications.

(Signed) H. T. KEELING,
Ex. Engineer, Madura Divn.

29th May 1902.

No. 214 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer, VI Circle, submits an estimate of Rs. 2,220 for improving the Velangudy Periya Kanmoy, a railway-affecting tank, under the influence of the Periyár project, which at present irrigates 794 acres, yielding an annual revenue of about Rs. 4,909. The improvements consist of constructing a masonry weir at the site of the mamool breach in the right flank, in place of the existing bye-wash in the left flank reported to be in a damaged condition owing to the rapid fall of the ground in rear, providing new heads to sluices Nos. 1 and 3, reconstructing sluice No. 4 and substituting two permanent pipe sluices for the temporary ones. The estimate may be sanctioned.

2. The estimate for repairs to the tank bund, being within the Superintending Engineer's powers of sanction, will be approved and returned to him to be sanctioned under maintenance and repairs of the Periyár-project.

3. The work is classed as "Unremunerative" as it is not directly remunerative in itself, but being required for the full development of the Periyár project, may be charged to the open capital account thereof. It will probably be completed by the 31st March 1903.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

11th August 1902.

ORDER—No. 993 I., dated 22nd August 1902.

The following estimate is sanctioned:—

Imperial.
Capital expenditure not charged to Revenue.
49. Irrigation.
Periyár Project.
Open Capital Account.
I. Works.
3. Distributaries.
Unremunerative work.
Improvements to the Velangudy Periya Kanmoy tank.

	RS.
C. Works—	
(1) Improvements to sluices Nos. 1 and 3	380
(2) Reconstructing sluice No. 4	370
(3) Constructing two pipe sluices	445
(4) Constructing a masonry weir at the right flank	1,025
Total, I. Works	2,220
II. Establishment ...	510
Grand Total ...	2,730

2. This sanction is registered as No. 125 I. of 1902–1903 and will expire on the 31st March 1903.

3. Ordered that a copy of these proceedings be forwarded to the Government of India for information.

[Here enter No. 994 I., dated 22nd August 1902.]

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle, with plans and estimate.
" Examiner, Public Works Accounts.

Endorsement—No. 994 I., dated 22nd August 1902.

Forwarded.

(By order.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

IRRIGATION.

Government {1902} of Madras

PUBLIC WORKS.

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G.O., No. 998 I., 28th August 1902.

AUGUST.

Inspection Notes

The — by the Acting Chief Engineer for Irrigation for June and July 1902, communicated, with remarks, to the officers concerned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

No. 220 I.

NOTES OF INSPECTION BY THE AG. CHIEF ENGINEER FOR IRRIGATION FOR JUNE AND JULY 1902.

	PARAS.
Public Works Workshops	1
Bezwada Head Sluice Shutters	2
Lock Gates, Cooum	3
Double Shutter, Red Hills	4
Hydraulic Shutter	5
Cooum Lock	6
Silt Apparatus for Mr. Moss	7
Bhaváni-Cauvery Reservoir Investigations	8 & 9
Mandyar Project	10
Codamurti Head	11
Upper Anicut	12
Periyár Works	13 & 14
Melrosapuram	15
Tungabhadra Investigation	16

Public Works Workshops—Cooum Groyne.—Three bays completed and should be fixed in position to test the working, especially of the horizontal planks. It has been suggested that vertical needles would be better, as originally designed, with cross bracing between the iron piles. A trial, however, should be made of the horizontal plank method first, as cross bracing will curtail waterway between piles and may encourage sanding up when needles are removed.

23rd June 1902.

2. *Bezwada Head Sluice Shutter.*—Is not yet complete. When ready, it should be put up in the shop and tested as to ease of working, etc.

3. *Lock Gates, Cooum.*—Have been greatly delayed with the consequence that the masonry of lock has had to be stopped for want of the gates. It is not understood why there should have been such delay as the gates were indented for at least six months ago.

4. *Double Shutter, Red Hills.*—The trial shutter should be ready within July and should be fixed in the weir as soon after as possible.

5. *Hydraulic Shutter.*—Is now complete and is easily workable by the men with the pump provided. It may be now dismantled and stored till required for erection by the Executive Engineer, Nellore. It is probable that ordinary gearing would have been more satisfactory than the hydraulic arrangement, cheaper and less liable to get out of order. The system, however, may now be given a regular trial.

6. *Cooum Lock.*—The work is now practically completed with the exception of the towers to take the shutters. These can only be built when the shutter has been received. It appears that the weight will be including counterweights about $3\frac{1}{2}$ tons on each tower. I trust that the foundations are sufficiently substantial to prevent the walls from cracking.

I believe myself that it will be necessary hereafter to put up a couple of wind-mills to pump sea water into the junction canal reach, as it is unlikely that the rain alone will be sufficient to keep the level of reach to 1 foot above the Cooum basin, as is contemplated. Experience of a few months will show the necessity or not.

7. *Silt Apparatus for Mr. Moss.*—There has been some delay in furnishing Mr. Moss with the necessary apparatus. It is hoped that everything will be in his hands before the end of June.

8. Met Mr. Moss and discussed with him various matters connected with the Cauvery and Bhavâni investigations. The silt apparatus ordered in the Public Works Workshops has been delayed for some inexplicable reasons. Fortunately, so far as regards this the floods are late this year, but if they had been normal we should have lost a month's observations. The Supervisor in charge in Tanjore has now been ordered to collect specimens of water, even if he should not have been fully provided with the necessary apparatus. A specimen list of forms and a copy of instructions will be forwarded to Sir T. Higham who asked for them when in Madras in February.

1st July 1902.

9. The local investigations in the Tanjore delta should be completed within the next three months and it would be well that a Special Revenue Officer should be deputed to frame the revenue forecasts and the rates for compensation of land to be taken up. The Executive Engineer will probably be ready with all necessary information for this officer to commence work in August. As far as I can judge at present the two blocks under the Cauvery and the Manjalur (10,000 acres and 3,000 acres respectively) should be omitted and only two blocks 47,000 acres in Tirutturaippúndi and 5,000 acres in Perambur should be included in the full project. With the Mannárgudi and Pattukkóttai irrigation of 120,000 acres direct and 60,000 acres under the tank we have sufficient to give a very fair percentage on the capital cost. At Nerinjipett a good site has, it would appear, been found with rock at a moderate depth below ground. I hope to inspect the site later on. With regard to the Tirutturaippúndi block, the supply required should be passed down the old Mullyar and not by a new cut as proposed. The advantages of a new cut are not sufficiently great to justify it and the ryots very strongly object to the dislocation of their irrigation and drainage which it would cause. If the level has to be raised within the first 13 or 14 miles a drop may be constructed at the 10th mile, if found necessary. As the level of supply will be from 7 to 8 feet above ground level at the main distributary head a catch-water drain on each side will be necessary for a distance of 4 or 5 miles to prevent percolation through the banks doing injury to the existing wet cultivation. The drains should discharge into the Mullyar below the regulator.

10. With Mr. Bhaskara Aiyar—Discussed various points with regard to the Nandyar reservoir project. It is proposed to construct a tank of 4,800 millions cubic feet capacity to be supplied by a channel 120 feet in width with 8 feet full supply depth taken off at the upper anicut. The project is part of a larger project originally proposed by Sir Arthur Cotton. It is calculated that the tank will irrigate 45,000 acres. I have no doubt that with a Cauvery reservoir, when a supply can be often given direct which would be impossible under present conditions, that the duty of the tank will eventually rise to 80,000 acres or even 100,000. The channel is also a catch-water drain and a considerable supplemental supply can be passed into the tank from local rain. It would be well that the designs of the principal masonry works should be submitted for approval before they are traced or inked in. This will save time. The revenue information has still to be obtained.

2nd July 1902.

11. *Codamurty Head.*—Met Sub-Divisional Officer and Overseer in charge of the section. The new shutters have been fixed and are working well, the only defect observable so far is that the pawls are too weak for the work required of them. The iron of which they are made is very soft and bends to the strain and in one or two cases they have broken. A serious accident is possible and the defect should be rectified at once. The shutters should also be counterbalanced to half their weight or

3rd July 1902.

a little more. The estimate should be prepared and submitted for sanction. The joints between the planks will have to be eventually caulked as the thin iron plates separating them will soon wear through from rust.

The Sub-Divisional Officer proposes with regard to the Pillay Vaikal estimate, which was stopped by the late Executive Engineer without adequate cause, to fit pipes into the banks for the minor distribution and to watch the effect this season. This should be done at once. A good supply enters the head, but does not get down more than 5 miles of the channel because of the open cuts and waste above. This state of things which has gone on for years should be remedied with the help of the revenue authorities. The complaints of the tailend land-owners are amply justified.

12. *Upper Anicut with Mr. Wilson.*—All the arches of the south branch have been turned and 31 out of 45 shutters fixed. The remaining shutters should be fixed if possible before the August floods, so that as the floods fall we may get the full benefit of the 8 feet depth of water which will be given by the raised height of crest. In the north branch four shutters have been fixed. The fitting of shutters very clumsily done, the vertical plates do not butt joint closely and the bolts and nuts are coarsely made. This matter requires the attention of the Public Works Workshops. At the north end of south branch a training bank is being constructed with revetment. I ordered the work to be stopped. It can serve no useful purpose and the money may be better spent.

7th July 1902.

13. With Mr. Cardew, the Collector, and the Executive Engineer as directed in G.O., No. 828 I., dated 21st July 1902. The result will be separately reported.

8th July 1902.

14. With Executive Engineer to Peranai. The foundations of 4 of the 40 vents of regulator have been put in and excavation for the remainder commenced. Sufficient material has been collected, some of which may possibly be lost if there is a flood in the Vaigai before October, but this, under the circumstances, cannot be helped. The cost and liabilities up to date amount to Rs. 9,000. The mortar showed signs of being not finely enough ground. This point requires attention. Otherwise the rubble work appears to be of good quality and the mortar is setting well. The completed work should be watered with a rose and the water should not be sluiced on as this tends to wash out lime.

9th July 1902.

It was proposed to dismantle the old head sluice and scouring sluice in order to utilize the cutstone. I am afraid this cannot be done as it is unlikely that all the iron shutters will be ready and fixed by June 1903. When the works can be demolished other uses must be found for the cutstone.

15. *Melrosapuram.*—With Mr. Ussher and Mr. Chatterton to inspect Melrosapuram where the pumping experiment by steam is in progress. It is found that the well gives work to the engine for 9 hours a day in three relays of 3 hours and that the hot weather yield is something between 60,000 and 80,000 gallons a day. It is expected that about 40 acres may be irrigated of dry crop cholam, ragi and gardens of cocoanut and plantains. If this result is attained the experiment may be considered a very successful one and the installation should be made permanent. The Superintending Engineer should arrange to have a detailed survey of the settlement made to a large scale. It would be advisable to put down a bore hole in the centre of the well to 20 feet and 3 inches diameter to ascertain if this will increase the yield of the well.

17th July 1902.

16. *Tungabhadra in the neighbourhood of Hospet.*—The object of my visit was to see on what lines the investigation about to be undertaken under Mr. Mackenzie should proceed or at all events be commenced. The proposal to place the sluices for the supply channel to pass through Bellary on a high level at * the reservoir alters the whole previously-assumed conditions of the case. The possible sites

21st to 28th July 1902.

* May be 100 feet above bed if necessary.

of reservoirs on the main Tungabhadra are as far as known at present somewhere about Harihar just within the Mysore boundary, at Vallavapur 9 miles above Hospet, at Malliapuram 3½ miles above Hospet and at Humpy 7 miles below. A line of levels from Harihar to the Sandur gap and thence down the Narivanka to the Darojee tank has been taken. The levels above M.S.L. are Harihar 1,710·60 (in another paper said to be 1,704) and of the Sandur gorge 1,884·59. It is clear that this line is impracticable, and that if a channel is to be made to the Sandur gorge it would have to be taken from the proposed Lakavalli reservoir on one of the Tungabhadra tributaries within Mysore territory. The channel would be over 100 miles long and through a difficult country. As the first objective is the protection of dry crops in the taluks of Bellary, Alur and Adóni, this proposal may for the present be left out of consideration.

By placing the sluices on a high level a high dam on the main river will be required instead of a dam of moderate height, say 60 feet, as previously assumed. At the Vallavapur site the length of dam required would be at least 5 miles supposing it to be 120 feet in height at the bed of the river. If possible, the reservoir wall for such a height should be wholly of masonry and not made with long flank banks of earth which would always remain a source of anxiety and danger. To get a wall wholly of masonry the choice apparently lies between the Harihar site, the Malliapuram (called also Colonel Fisher's Hospet site) and the Humpy site. The objection to the Harihar site is the long channel, and through difficult country, required to reach Malliapuram a point which the channel must pass to reach Hospet. The Humpy site is the best on the river so far as known. A dam here of 150 to 180 feet would give sufficient command for a channel to pass through the Nallapuram saddle and thence by a tunnel at Metri to the Darojee tank. The disadvantages of this site are that a part of the railway would be submerged necessitating either the raising of its embankments or a costly diversion, the ruins of Humpy would be submerged and a considerable area of valuable land as well. My impression then so far is that the Malliapuram site is the best and the one that should be first investigated. It is probable that at a few feet below the bed where a soft rock is exposed good sheet rock will be found; such is found a mile or two below; on the flanks the foundations would be on Dharwar schist judging at least from the geological map. From the superficial investigation I have made it would appear possible with a dam 120 feet high to get a high level channel through the Papanaykanhalli pass by a tunnel 3 to 4 miles long. Along the base of the hills from the Rajakair tank a channel could be taken towards Papanaykanhalli. There is along this line a broad and deep depression considerably lower in level than the railway, and the depression is also found on the Bellary side of the pass. It is quite possible that this channel will cost more than a channel on Gordon's line, but it has some extraordinary advantages that should not be overlooked—First, there will be little or no loss by absorption or percolation on the way; it is admitted that the loss on Gordon's line will be very great. Second, Bellary will be commanded and a considerably better command will be obtained along the whole line. Third, the maintenance after construction will be small compared with that of the other line which will pass through a difficult country. The line from Gadaganur on the railway to Bellary is easy and presents no difficulties. I therefore strongly advise investigation of the possibility of building a reservoir on the Tungabhadra at Malliapuram and of carrying a high level channel through the Papanaykanhalli pass before any other line of investigation is taken in hand. A reservoir of 120 feet high at Malliapuram will necessarily submerge a large area of land both in English and in the Nizam's territories some of it very valuable, but this cannot be helped. So far as compensation goes there should be a considerable set-off on both sides by the sale of waste lands which will be eventually brought under irrigation. A well-considered scheme of colonising the dispossessed on lands coming under the project on both sides, if the reservoir is made a joint undertaking, as it should be, will also considerably diminish the cost of compensation. If, for any good reasons, the Malliapuram site is rejected, then a site must be sought higher up the river above Vallavapur where a masonry dam can be built across the whole width of the valley in preference to building at Vallavapur. The channel may still be taken through the Papanaykanhalli pass. If, for adequate reasons, this line of channel is also condemned, there is then no

other available line than the old one of Gordon's. It will have to be considered with reference to the storage whether the whole required supply (at present assumed at 6,000 cusecs) should be all taken by the one channel through Bellary, or whether it would not be more economical, and in fact necessary, to take half by the Bellary channel and a half by the enlarged Kurnool-Cuddapah canal or by a separate canal along the left bank of the Tungabhadra from Sunkesala and crossing the Tungabhadra by an aqueduct somewhere near Nagatur into a probably deepened Mitakonda cutting. Mr. Mackenzie has a difficult but most interesting investigation before him, but I have no doubt that a reasonable and certain solution of the question of utilising the surplus waters of the Tungabhadra is possible.

Madras,
6th August 1902.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

Order—No. 998 I., dated 28th August 1902.

Communicated to the officers concerned for information and guidance.

2. Paragraph 9 of the notes will be referred to the Revenue Department for necessary action with reference to paragraph 3 of G.O., No. 352 I., dated 19th March 1902.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineers, III, V and VI Circles
and Superintending Engineer on Special Duty.
,, the Executive Engineer on Special Duty,
Bhaváni-Cauvery Investigation.
,, the Executive Engineer on Special Duty,
Tungabhadra Investigation.
,, the Revenue Department.
,, the Examiner of Public Works Accounts.
,, the General Superintendent, Public Works Workshops.

IRRIGATION.
ACCOUNT.

Government {1902} of Madras.

PUBLIC WORKS.

Recd.	1902.	*Enclosures*	
Regd.		*Spare copies*	

G.O., No. 999 I., 28th August 1902.

AUGUST.

Demarcation stones on the lines of bunds and distributaries, Paleru Project, Nellore District

The estimate of Rs. 610 for fixing —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From H. E. CLERK, Esq., Superintending Engineer on Special duty, to the Chief Engineer for Irrigation, dated 5th August 1902, No. 1189.

I have the honour to submit, for your sanction, an estimate of Rs. 610 for fixing demarcation stones to the lines of bund and distributaries of the Paleru project in the Nellore district.

2. The cost can be met out of the proposed provision of Rs. 3,000 for unforeseen works in the revised estimate of requirements for 1902–1903 under 35. Construction of Protective Irrigation Works.

No. 219 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer on Special duty submits an estimate of Rs. 610 for fixing demarcation stones on the lines of bunds and distributaries, Paleru project, Nellore district. The estimate may be sanctioned.

(Signed) A. W. SMART, Col., R.E.,
Ag. Chief Engineer for Irrigation.

15th August 1902.

ORDER—No. 999 I., dated 28th August 1902.

The following estimate is sanctioned :—

Imperial.
35. Construction of Protective Irrigation Works.
Minor Works and Navigation for which neither Capital nor Revenue accounts are kept.
Nellore Division.
Original Works.
Fixing demarcation stones on the lines of bunds and distributaries, Paleru Project.

	RS.
Estimate	610

2. This sanction is registered as No. 126 I. of 1902–1903.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle.
„ Superintending Engineer on Special duty.
„ Examiner, Public Works Accounts.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT

TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS AND MATTERS OF ROUTINE

IRRIGATION

FOR THE MONTH OF AUGUST 1902.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for excavating new Vemavaram branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	1st Aug. 1902, No. 882 I.	......
Land.—Notification for the acquisition of — required for Desamavadu channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	1st do. do. No. 883 I.	......
Land.—Notification for the acquisition of — required for excavating Vellatur channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	1st do. do. No. 884 I.	......
Administration Report of the Public Works Department, Irrigation Branch, Madras.—Ordered that a letter be sent to the Secretary, Irrigation Commission, forwarding a copy of the — for each of the years 1896-97, 1897-98 and 1898-99.	2nd do. do. No. 885 I.	......
Letter to the Secretary, Irrigation Commission.	2nd do. do. No. 886 I.	......
Land.—Notification for the acquisition of — required for Nagamalladinne channel in Jammalamadugu taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	4th Aug. 1902. No. 888 I.	......
Land.—Notification for the acquisition of — required for Perisapad Branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	4th do. do. No. 889 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for the drainage scheme at Arundelpet Bezwada, Bezwada taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	4th Aug. 1902, No. 890 I.	......
Land.—Notification for the acquisition of — required for the excavation of Kukkudakhandi channel, Berhampore taluk, Ganjám district, ordered to be published in the *Fort St. George Gazette.*	4th do. do. No. 891 I.	......
Approaches to Tinnanore head sluice, Saidapet taluk, Chingleput Division.—The execution, by the Public Works Department, of the contribution work of repairing the —, sanctioned, with remarks.	5th do. do. No. 894 I.	......
Sluice in Pullambakam shrotriem limits, Kattavoor Hissa Tank, Ponnéri taluk, Chingleput district.—The execution, by the Public Works Department, of the contribution work of constructing a —, sanctioned.	5th do. do. No. 895 I.	......
Date of completion of the construction of new Allaram aqueduct.—Ordered that the sanction of the Government of India to the extension of the — to 31st March 1903 be applied for (the same extension being sanctioned by this Government in the case of Rajupalem and Ravulgudi projects), and that a copy of the proceedings be forwarded to the Government of India.	5th do. do. No. 896 I.	......
Forwarded	5th do. do. No. 897 I.	......
Administration Report of the Public Works Department, Irrigation Branch.—Ordered that a letter be sent to the Resident Hydrographer, Dender, Colorado, forwarding a copy of the — for the year 1900-1901.	6th do. do. No. 898 I.	......
Letter to the Resident Hydrographer, Dender, Colorado.	6th do. do. No. 899 I.	......
Expenditure.—Authorising the Examiner, Public Works Accounts, to admit, as a special case, the — of Rs. 14-12-0 on provisions supplied to Muhammadan masons for the celebration of Bakrid on the work they were engaged in, instead of in their houses at, Kurnool.	6th do. do. No. 903 I.	......
Administration Report, Public Works Department, Irrigation Branch.—Ordered that a letter be sent to George P. Barber, Esq., M.L.A., Parliamentary Library, Brisbane, stating that the Superintendent of Government Press, Madras, will supply him with a copy of the — for each of the three years ending 1900-1901, and Mr. H. E. Clerk's report on the investigation of protective irrigation works.	6th do. do. No. 904 I.	......
Letter to George P. Barber, Esq., M.L.A., Parliamentary Library, Brisbane, Queensland, Australia.	6th do. do. No. 905 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Water supplied to the Chidambaram Municipality from Government Irrigation Works.—Proceedings, Local and Municipal Department, declining to modify the decision that it was reasonable that the Chidambaram Municipality should pay for — for drinking purposes, communicated to the officers concerned.	7th Aug. 1902, No. 906 I.	31st July 1901, No. 3418 C. 25th June 1901, No. 2978 C.
Telephone line proposed along certain canals in the Madras Presidency.—Letter from the Director-General of Telegraphs stating that the Government of India have sanctioned the inclusion, in the forecast of telegraph lines for 1903–1904, of the 30 miles of —, communicated to Superintending Engineer, I Circle.	7th do. do. No. 907 I.	......
Land.—Notification for the acquisition of — required for excavating minor distributaries and field channels in XII. Branch channel sluice No. 1, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	7th do. do. No. 908 I.	......
Land.—Notification for the acquisition of — required for providing means of irrigation to survey No. 20 in Settikulam village, Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	7th do. do. No. 909 I.	......
Land.—Notification for the acquisition of — required for repairing Kummara calva upper portion, Amalápuram taluk, Gódávari district, ordered to be published in the *Fort St. George Gazette.*	7th do. do. No. 910 I.	......
Funds.—Sanctioning certain transfers of — under 49. Capital expenditure not charged to Revenue, and ordering that a copy of the proceedings be forwarded to the Government of India for information.	7th do. do. No. 911 I.	......
Forwarded	7th do. do. No. 912 I.	......
Land.—Notification for the acquisition of — required for the construction of stables at Kukkudakhandy, Berhampur taluk, Ganjám District, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 915 I.	......
Land.—Notification for the acquisition of — required for improving the tail end of the 5th branch channel, Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 916 I.	......
Land.—Notification for the acquisition of — required for excavating parallel bodi from above Bobbannapalli dam, Bhimavaram taluk, Gódávari district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 917 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for improvements to some branch channels below the Avadhanula tank of Purushottapur, Chicacole taluk, Ganjám district, ordered to be published in the *Fort St. George Gazette.*	8th Aug. 1902, No. 918 I.	......
Land.—Notification for the acquisition of — required for providing means of irrigation for the bed of Pudukulam tank, Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 919 I.	......
Land.—Notification for the acquisition of — required for constructing sluices and excavating field channels below 9th mile, XII. Branch channel, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 920 I.	......
Land.—Notification for the acquisition of — required for repairs to Kummara kalva upper portion, Amalápuram taluk, Gódávari district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 921 I.	......
Land.—Notification for the acquisition of — required for field channels from sluice No. 4, 6th main distributary, XII. Branch channel, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 922 I.	......
Land.—Notification for the acquisition of — required for excavating field channels and constructing masonry sluices, etc., in XII. Branch channel, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 923 I.	......
Land.—Notification for the acquisition of — required for a minor field channel, 4th branch channel, and its offtakes in Kumaram village, Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 924 I.	......
Land.—Notification for the acquisition of — required for the proposed straight cut of the Surada river, Sarvasiddhi taluk, Vizagapatam district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 925 I	......
Land.—Notification for the acquisition of — required for continuing the tail end of the 8th distributary, XII. Branch channel, Periyár, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 926 I.	......
Land.—Notification for the acquisition of — required for excavating minor distributaries and field channels in XII. Branch channel, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 927 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for the Chopad project, Proddatur taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	8th Aug 1902, No. 928 I.	......
Land.—Notification for the acquisition of — required for excavating Tirukanai drain, Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 929 I.	......
Land.—Notification for the acquisition of — required for minor distributaries and field channels, Melur taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 930 I.	......
Land.—Notification for the acquisition of — required for extending the bund of Ariyar tank, Sankaranáyinárkoyil taluk, Tinnevelly district, ordered to be published in the *Fort St. George Gazette.*	8th do. do. No. 931 I.	......
Transfer of Funds.—Proceedings, Financial Department, directing that a sum of Rs. 9,500 be transferred from the head 43. Minor Works and Navigation in charge of Civil officers to the head 42. Minor Works in charge of Public Works officers, and requesting the Accountant-General to place the amount at the disposal of the Public Works Department, communicated to the officers concerned.	8th do. do. No. 932 I.	......
Land.—Cancelling the sanction accorded to the temporary occupation of — required for Mogalikudur channel.	11th do. do. No. 933 I.	15th Jan. 1902, No. 61 I.
Rainfall in the catchment area of the Pápaghni river, Madanapalle taluk, Cuddapah district.—Ordered that a letter be despatched to the Resident in Mysore requesting him to move the Mysore Darbar to furnish the Collector of Cuddapah with particulars of — for certain years.	12th do. do. No. 936 I.	......
Letter to the Honourable the Resident in Mysore.	12th do. do. No. 937 I.	......
Remission of assessment.—Proceedings, Revenue Department, sanctioning, with remarks, — on certain lands damaged by the action of the Periyár water, communicated to the Superintending Engineer, VI Circle.	13th do. do. No. 942 I.	......
Bridge across the Periyár main channel near Thathampatti village, Madura district.—Endorsement of the Superintending Engineer, VI Circle, reporting that no further contribution can be demanded from the ryots of Thathampatti village for constructing a —, recorded.	13th do. do. No. 943 I.	......
Lascars' store sheds at Tiruvendipuram anicut, Cuddalore taluk, South Arcot district.—The execution, by the Public Works Department, of the contribution work of repairing the —, sanctioned.	13th do. do. No. 944 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for the diversion of Jalamoor channel, Chicacole taluk, Ganjám district, ordered to be published in the *Fort St. George Gazette.*	16th Aug. 1902, No. 948 I.	......
Land.—Notification for the acquisition of — required for restoring Remidicherla tank, Vinukonda taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 949 I.	......
Land.—Notification for the acquisition of — required to be taken up in Yeletipalem, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 950 I.	......
Land.—Notification for the acquisition of — required to be taken up in Yeletipalem, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 951 I.	......
Land.—Notification for the acquisition of — required for the proposed diversion of the Jaggampeta channel, Golgonda taluk, Vizagapatam district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 952 I.	......
Land.—Notification for the acquisition of — required to be taken up for the main canal in the Guntúr taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 953 I.	......
Land.—Notification for the acquisition of — required for improving Nallamilli channel, Amalápuram taluk, Gódávari district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 954 I.	......
Land.—Notification for the acquisition of — required for excavating minor distributaries and field channels in XII branch channel, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 955 I.	......
Land.—Notification for the acquisition of — required for excavating Pedamatlapudi branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 956 I.	......
Land—Notification for the acquisition of — required for excavating Peddavaram branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 957 I.	......
Expenditure on the upkeep of Minor Irrigation Works.—Proceedings, Revenue Department, recording Board's Proceedings submitting a report on the — during 1901–1902, recorded.	16th do. do. No. 958 I.	22nd Aug. 1902, No. 635 I.
Special Grant of 5·50 *lakhs.*—Proceedings, Financial Department, recording, with remarks, letter from the Government of India approving the allotments of Rs. 35,000 and Rs. 74,440 made under Minor Works and Navigation, Public Works Department, from the —, communicated to the officers concerned.	16th do. do. No. 959 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Periyákulam tank.—Proceedings, Revenue Department, passing orders on the question as to how the cost of maintaining the — affecting the South Indian Railway in the Dindigul taluk, Madura district, should be met, communicated, with remarks, to the Superintending Engineer, VI Circle.	16th Aug. 1902, No. 960 I.	......
Statistics of irrigation, water distribution and working of distributaries of the canals in the Punjab.—Letter from the Chief Engineer, Irrigation Works, Punjab, forwarding copies of the — for the year 1900-1901, communicated to the officers concerned.	16th do. do. No. 964 I.	......
Land.—Notification for the acquisition of — required for excavating field channels and constructing sluices in XII branch channel, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 965 I.	......
Land.—Notification for the acquisition of — required for excavating field channels and constructing masonry sluices in XII. Branch channel, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 966 I.	......
Land.—Notification for the acquisition of — required for improving the weir and reconstructing sluice No. 1 of Kaduvanur tank, Kallakurchi taluk, South Arcot district, ordered to be published in the *Fort St. George Gazette.*	16th do. do. No. 967 I.	......
43. *Minor Works and Navigation—Provincial.*—Letter from the Government of India stating that it is impossible to allot more than Rs. 4,00,000 under — and giving instructions for its utilization, recorded.	16th do. do. No. 968 I.	......
Odiyathur tank in Attur taluk, Salem district.—The execution, by the Public Works Department, of the contribution work of repairing the bund of the —, sanctioned with remarks.	19th do. do. No. 972 I.	......
Administration Reports of the Irrigation Branch.—Letter from the Secretary, Indian Irrigation Commission, returning the — for the years 1881-1882 to 1899-1900, recorded.	20th do. do. No. 974 I.	......
Revised forecast of Revenue from the Periyár Project.—Memorandum from the Revenue Department, requesting the Board of Revenue to expedite the submission of the —, recorded.	20th do. do. No. 975 I.	......
Revised train service for the South Indian Railway.—Proceedings, Public Works Department, Railway branch, sanctioning the introduction of the — with effect from the 1st August 1902, recorded.	21st do. do. No. 980 I.	......
Land.—Notification for the acquisition of — required for Jillapalli branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	21st do. do. No. 981 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for Raichur West branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	21st Aug. 1902, No. 982 I.	......
Land.—Notification for the acquisition of — required for the Ponnalur project, Kandukur taluk, Nellore district, ordered to be published in the *Fort St. George Gazette.*	21st do. do. No. 983 I.	......
Land.— Notification for the acquisition of — required for the new head sluice to the Pudendram channel, Máyavaram taluk, Tanjore district, ordered to be published in the *Fort St. George Gazette.*	21st do. do. No. 984 I.	......
Lands.—Notifications withdrawing the orders for the acquisition of certain — in the waterspread of certain tanks in the Madura taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	21st do. do. No. 985 I.	......
Land.—Notification for the acquisition of — required for diverting Pulikutti channel, and excavating two irrigation channels in Cuddalore taluk, South Arcot district, ordered to be published in the *Fort St. George Gazette.*	23rd do. do. No. 995 I.	......
Land.—Notification for the acquisition of — required for repairing Khandavilli No. 2 channel, Tanuku taluk, Gódávari district, ordered to be published in the *Fort St. George Gazette.*	23rd do. do. No. 996 I.	......
Land.—Notification for the acquisition of — taken up for the Chapad project, Proddattur taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	23rd do. do. No. 997 I.	......
Sathapady Tank Weir, V Circle.—The date of completion of the work of improving the — extended to 31st July 1903.	28th do. do. No. 1000 I.	......
Ramasamudram reservoir in the Mysore Territory.—Ordered that certain enclosures received from the Board of Revenue, in connection with the statistics of cultivation, etc., under tanks affected by the construction of the — be forwarded to the Revenue Department.	28th do. do. No. 1001 I.	16th Dec. 1901, No. 983 I. 20th Aug. 1901, No. 629 I.
Land.—Directing the Head-quarter Deputy Collector of Nellore to procure the temporary occupation and use of the — required for stacking materials for the Lodum anicut.	28th do. do. No. 1002 I.	......
Land.—Notification for the acquisition of — required for excavating Poondla drain, Bápatla taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	28th do. do. No. 1003 I.	......
Land.—Notification for the acquisition of — required for excavating Poondla drain, Bápatla taluk. Kistna district, ordered to be published in the *Fort St. George Gazette.*	28th do. do. No. 1004 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for excavating Poondla channel, Bápatla taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	28th Aug. 1902, No. 1005 I.	......
Land.—Notification for the acquisition of — required for a side drain channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	28th do. do. No. 1006 I.	......
Land.—Notification for the acquisition of — required for the straight cut of the Korayar river, Mannárgudi taluk, Tanjore district, ordered to be published in the *Fort. St. George Gazette.*	28th do. do. No. 1007 I.	......
Land.—Notification for the acquisition of — required for the construction of a branch channel in Cuddapah taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1008 I.	......
Land.—Notification for the acquisition of — required for Chapad project, Proddatur taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1009 I.	......
Land.—Notification for the acquisition of — required for excavating Raichur East branch in Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1010 I.	......
Land.—Notification for the acquisition of — required for excavating Peddavaram branch channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1011 I.	......
Land.—Notification for the acquisition of — required for excavating Borigam channel, Berhampur taluk, Ganjám district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1012 I.	......
Land.—Notification for the acquisition of — required for repairs to Ayyappa Reddi tank of Chintakunta, Vayalpad taluk, Cuddapah district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1013 I.	......
Land.—Notification for the acquisition of — required for the diversion of Nellithorai channel, Coimbatore taluk, Coimbatore district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1014 I.	......
Land.—Notification for the acquisition of — required for excavating field channels in the X. Branch channel, and Tiruvadoor offtake, Periyár, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1015 I.	......
Land.—Notifications for the acquisition of — required for strengthening the banks of Sárada river, Anakapalle taluk, Vizagapatam district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1016 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Land.—Notification for the acquisition of — required for excavating new Vemadaram channel, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	29th Aug. 1902, No. 1017 I.	......
Land.—Notification for the acquisition of — required for the extension of the weir at the right flank of Sevalkulam tank, Srívilliputtúr taluk, Tinnevelly district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1018 I.	......
Land.—Notification for the acquisition of — required for excavating Parisapadu branch, Tenali taluk, Kistna district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1019 I.	......
Land.—Notification for the acquisition of — required for excavating field channels in the X branch channel and Tiruvadoor offtake, Periyar, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1020 I.	......
Land.—Notification for the acquisition of — required for excavating field channels in the X branch channel and Tiruvadoor offtake, Periyar, Mélúr taluk, Madura district, ordered to be published in the *Fort St. George Gazette.*	29th do. do. No. 1021 I.	......